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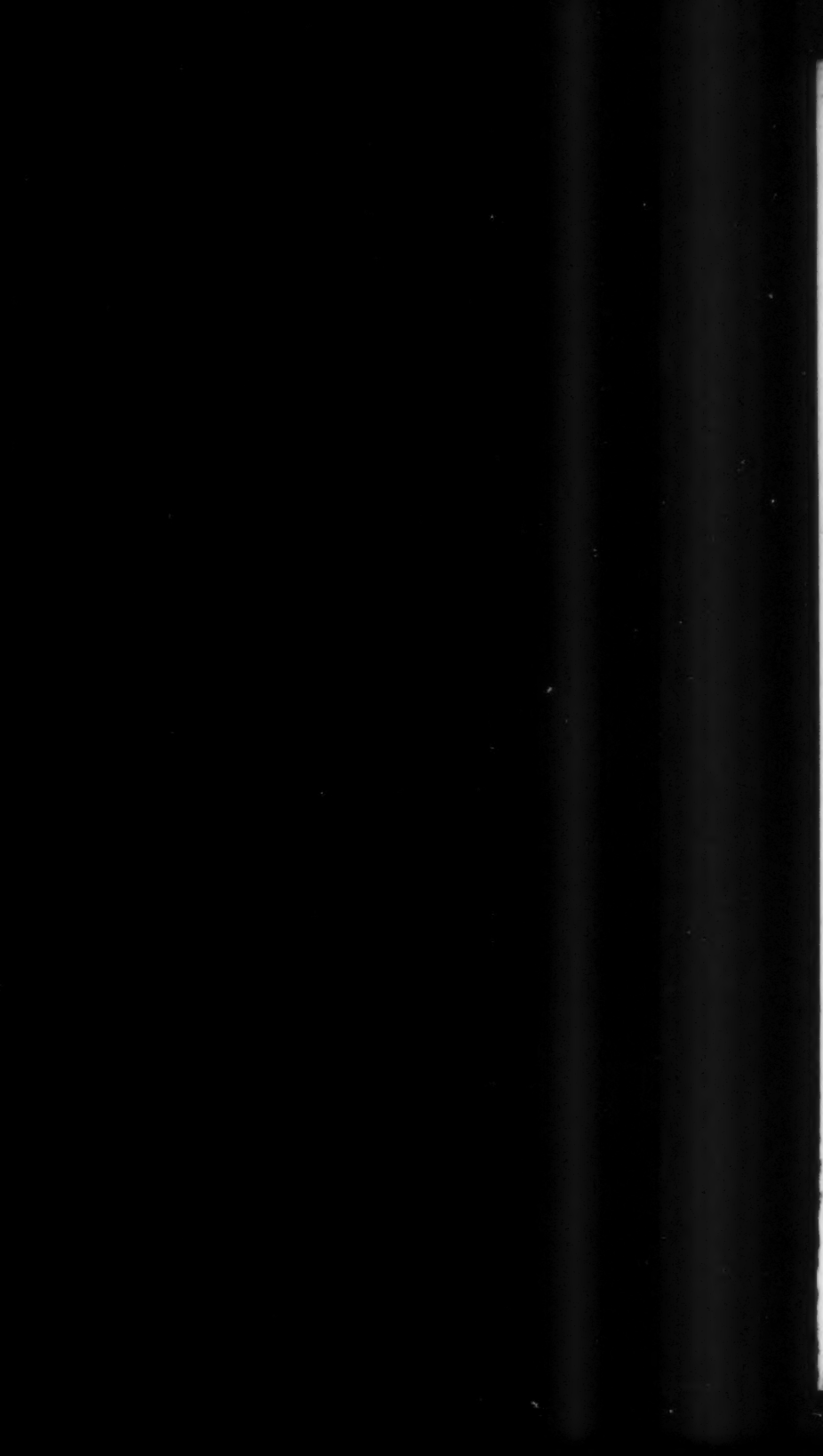
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THE QUARTERLY JOURNAL OF ECONOMICS

NOVEMBER, 1931

ECONOMIC ASPECTS OF ADULTERATION AND IMITATION

SUMMARY

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INTRODUCTION

Imitations and adulterated articles are special types of substitute goods. Substitution has been studied by many economists, most recently by Fanno,¹ who has reviewed the literature so adequately that it need not be reviewed again here. Fanno has developed in considerable detail a theory of substitute goods without, however, considering the case in which the substitute is an imitation or an adulterated good, the purchaser not having full knowledge of its character. Some economists, indeed, have pointed out the invalidity of the assumption, so often made or implied, of perfect knowledge on the part of the purchaser,² but many have been interested in the phenomenon of purchaser ignorance merely

1. M. Fanno, "Contributo alla Teoria Economica dei Beni Sucedanei," *Annali di Economia*, ii, 329 (1926).

2. J. M. Clark, "Economics and Modern Psychology, I," *Journal of Political Economy*, xxvi, 1 (1918); S. H. Slichter, "The Organization and Control of Economic Activity," in *The Trend of Economics*, edited by R. G. Tugwell, New York, 1924, p. 301.

as a basis for attack upon the concept of marginal utility.³ The special case of substitute goods in which the purchaser lacks knowledge because of adulteration or imitation does not seem to have been studied in detail. An inquiry into this case is presented in this paper.

I.

To avoid misunderstanding, the terms, *adulteration*, *substitute*, *surrogate*, *imitation*, *artificial*, *synthetic*, and *falsification*, need to be defined.

The terms, *adulteration* and *sophistication*, as applied to commodities are synonymous; the former is more commonly used in English-speaking countries, the latter is becoming archaic, tho still used in Europe. Adulteration is any act that renders an article other than of the nature, substance, and quality demanded by the purchaser or other than of the nature, substance, and quality the purchaser is presumed to have expected.⁴ Whether the act renders the article intrinsi-

3. E. H. Downey, "The Futility of Marginal Utility," *Journal of Political Economy*, xviii, 253 (1910); T. Veblen, "The Limitations of Marginal Utility," *ibid.*, xvii, 620 (1909), reprinted in T. Veblen, *The Place of Science in Modern Civilization and Other Essays*, New York, 1919, p. 231.

4. C. E. Cassal, "The Adulteration of Food," *Journal of the Society of Arts*, 1911, p. 451. The Federal Food and Drugs Act contains no general definition. It provides that a good shipped in interstate commerce shall be regarded as adulterated:

"In the case of food:

First. If any substance has been mixed and packed with it so as to reduce or lower or injuriously affect its quality or strength.

Second. If any substance has been substituted wholly or in part for the article.

Third. If any valuable constituent of the article has been wholly or in part abstracted.

Fourth. If it be mixed, colored, powdered, coated, or stained in a manner whereby damage or inferiority is concealed.

Fifth. If it contain any added poisonous or other added deleterious ingredient which may render such article injurious to health: *Provided*, That when in the preparation of food products for shipment they are preserved by any external application applied in such manner that the preservative is necessarily removed mechanically, or by maceration in water, or otherwise, and directions for the removal of said preservative shall be printed on the covering or the package, the provisions of this

cally inferior or superior is of no moment; an article may in fact be superior for the purpose which it is to serve and yet be adulterated in the eyes of the consumer. Deception is the essence of adulteration; the equivalent word in French, *falsification*, expresses the concept of adulteration precisely.

Since deception is implied in the concept, *adulteration*, the representations made in connection with a commodity are important. In a great many cases, tho by no means in all, an article can no longer be regarded as adulterated if the representations made in regard to it are recognized and tell the whole truth. The article remains a debased product, but the stigma of adulteration has been removed. If represented as what it really is, it becomes a different article or another grade of the commodity in question.⁵ Thus, under the terms of the United States Food and Drugs Act, skim milk is adulterated milk, since a valuable ingredient, cream, has been removed. If sold as skim milk, however, it is not adulterated. It is then regarded either as another commodity or as a grade of milk lower than unskimmed milk. Similarly, a mixture of equal parts of maple sugar and cane sugar is an adulterated article, and it is misbranded if it is labelled either as maple sugar or as cane sugar. It is neither misbranded nor adulterated if it is labelled as a mixture or compound of maple and cane sugars. If sold as cane sugar, it would be both adulterated and misbranded, altho from the standpoint of price it is a superior commodity, since a higher-priced commodity shall be construed as applying only when said products are ready for consumption.

Sixth. If it consists in whole or in part of a filthy, decomposed, or putrid animal or vegetable substance, or any portion of an animal unfit for food, whether manufactured or not, or if it is the product of a diseased animal, or one that has died otherwise than by slaughter." — (34 Stat. 768; U. S. Comp. Stat. 1901, Supp. 1911, p. 1354.)

5. The sale of one and the same article under different designations as though offering two different products is not uncommon; it is accompanied sometimes by the asking of two different prices. While the economic implications of this practice are both interesting and important, they cannot be discussed in this paper because such a discussion must be based on an extended analysis of the many types of misbranding in vogue, and such an analysis would unduly extend the scope of this paper.

modity, viz., maple sugar, has been substituted in part for cane sugar. On the other hand, from the standpoint of chemical purity, it is an inferior article, since a chemically less pure commodity, viz., maple sugar, has been substituted in part for a chemically much purer article, commercial cane sugar.

The terms, *substitute* and *surrogate*, are synonymous; the former is more generally used in English-speaking countries, the latter in Europe. A substitute is an article which may more or less perfectly serve the purposes in use of another article.⁶ It may or may not resemble the article for which it may be substituted. An ox may be a substitute for a horse, or a tractor for either; wool may be a substitute for camel's hair; cotton, for linen; cottonseed oil, for olive oil. Whether deception is involved depends upon the representations that are made. The concept, *substitute* or *surrogate*, does not in itself imply deception, nor does it imply, necessarily, resemblance to the article for which substitution is made, other than that the substitute must be capable of serving more or less perfectly the same purposes.

An imitation, on the contrary, is an article that closely resembles some other article; it may or may not be a substitute. The resemblance is usually in appearance. Paste may be made to resemble diamonds so closely that all but jewellers are deceived; yet paste will not serve many of the purposes for which diamonds are used — glass cutting, for example, or oil-well drilling. It is, therefore, not a substitute, at least so far as concerns these uses; it is an imitation. Whether deception is involved depends upon the representations made. The sale of paste as paste or as an imitation diamond involves no deception.

The concepts, *adulteration*, *imitation*, and *substitution*, overlap. Thus, a mixture of a small proportion of cottonseed oil with a large proportion of olive oil is adulterated olive oil,

6. This is the common, popular meaning of the word. Some economists have used it or equivalent words in a much broader sense to apply to any good or combination of goods that takes the place of another good or combination of goods in satisfying a need — not necessarily wholly the same need. Cf. Fanno, *op. cit.*, p. 348.

if sold as olive oil. When the mixture consists of about equal parts of cottonseed and olive oils, one may speak of it truthfully as adulterated cottonseed oil or adulterated olive oil, or as imitation olive oil or imitation cottonseed oil, or as olive-oil substitute or cottonseed-oil substitute. If the replacement of olive oil by cottonseed oil is complete — if the article contains no olive oil at all, one may then truthfully describe the product as pure cottonseed oil, as imitation olive oil, or as olive-oil substitute.

Adulteration of the type represented by the partial substitution of one article for another by mixing is very common, but there is a long list of commodities in which this is not possible. It is in this group that imitations are commonest. Familiar examples are imitation leather, certain types of furs, various alloys simulating precious metals, various compositions simulating ivory, marble, alabaster, amber, and the like.

The word, *adulterated*, has to most persons a sinister implication of inferiority. The inferiority, however, as we have seen in the discussion of such a mixture as cane and maple sugars, may be subjective rather than intrinsic. The term, *adulteration*, may also carry the further implication of harmfulness. It is generally true that the consumer regards adulterated foods as poisonous or at the very least as deleterious to health; yet this is far from the truth. As we have seen, skim milk under certain circumstances is in law adulterated milk, but no one would assert it to be unwholesome. Similarly, watered milk is adulterated milk, altho no one would maintain that it is dangerous to health.

The word, *imitation*, also has an ignoble connotation which, however, does not usually imply harmfulness. The antagonism to imitations arises rather from the fact that their use confers the opposite of social prestige upon the user. One of the factors that restricts the consumption of margarine, for example, is that in certain circles its use is regarded as a social stigma. Indubitably, some housewives do not buy uncolored margarine for fear of giving an unfavorable impression to visitors who might see it upon their tables. To color it them-

selves with the dye furnished free with each package is inconvenient, while to buy margarine already colored is expensive, since upon such margarine there is a federal tax of 10 cents a pound as against $\frac{1}{4}$ cent upon the uncolored.

It is no wonder, therefore, that the designation, *imitation*, is very generally avoided by various subterfuges. If the manufacturer is unscrupulous and the article simulates the genuine rather closely, it may be palmed off as genuine. If the manufacturer is a little more scrupulous, or if the article is not a very close simulation, or both, it may be given the name of the genuine article it imitates, qualified by some uninforming or puffing adjective. Examples are the fur, Hudson seal, which is made from muskrat skins; Maine sardines, which are not sardines at all but small herrings; or Bombay mace, which is, to be sure, derived from a species of the mace family, but one practically devoid of condimental value.

If the manufacturer is scrupulous yet anxious to avoid the word, *imitation*, he may use the word, *artificial*, or *synthetic*, instead. These words, however, have meanings not identical with that of the word, *imitation*. An artificial article in the strict sense of the term is one which in chemical and physical properties is practically identical with some natural product, but produced by artificial means. Imitation leather is wrongly termed artificial leather, since it is not, chemically speaking, leather at all. This is also true of artificial silk, so-called, which is not silk at all but a cellulose derivative.

There are, in fact, few products which are artificial in the true sense. They are mostly chemical compounds occurring as such in nature but capable also of being manufactured. The natural and artificial article are identical, chemically speaking, tho there may be minor physical differences, principally in size, shape, color, or physical structure. Typical examples are vermillion, ultramarine, and corundum. The vermillion, ultramarine, and corundum of commerce were originally minerals occurring in nature. As now manufactured, all of them are identical chemically with the natural product. Similarly, artificial rubies and sapphires are manufactured chemically identical with the natural gems and

distinguishable only by special methods of illumination and with the help of special kinds of radiation. The word, *artificial*, it may be noted, is often used improperly, as in speaking of artificial flowers, which would be described more correctly as imitation flowers.

The term, *synthetic*, is used loosely but incorrectly as synonymous with artificial. *Synthesis* was first introduced by chemists to designate the production of complex molecules through the joining by chemical union of simpler ones, but it is also sometimes loosely applied to the formation of simpler molecules from more complex ones. A chemical reaction is always involved. A mere change of state, therefore, such as is involved in the production of a white sapphire by fusing amorphous alumina so as to form a crystal, is not synthesis, a point that has been litigated.⁷ The chemical composition remains unaltered; the positions of the molecules with respect to one another have merely been changed from the more or less haphazard arrangement of the amorphous state to the orderly one that characterizes the crystal. Indigo, on the other hand, is a truly synthetic substance made by a true synthesis from certain simpler constituents of coal tar.

A mere mechanical putting together, without chemical reaction, is not synthesis. Perfumes made by mixing natural odoriferous substances are not synthetic, tho often so represented. The rubies that were at one time made by fusing together fragments of natural rubies are neither synthetic nor artificial stones. They are not synthetic, because no chemical reaction is involved; they are not artificial, because they were made from natural gems. There is no single word that characterizes them precisely. They might be described as *reconstituted* rubies, by analogy with reconstituted milk, which is made by intimately mixing suitable proportions of butter, dried skim milk, and water in special machines.

An artificial article, then, may or may not be synthetic. Many synthetic substances moreover, are not artificial, because this adjective implies that they have a counterpart in nature. Aspirin, for example, is a synthetic substance, but

7. Cf. H. Michel, *Die künstlichen Edelsteine*, Leipzig, 1926, ch. I.

it is not artificial, since it is not found in nature. It first came into existence in a chemist's laboratory.

As a matter of convenience, the word, *falsification*, has been chosen as a general descriptive term for the several types of manipulation considered in this paper. It does not seem to have been employed in English economic literature, and therefore carries no specific technical implications — an advantage as compared with such an alternative as *debasement*.

II.

The reaction of genuine goods to the competition of falsified ones may take the following forms: (1) The falsified good may drive the genuine out of use; (2) both may remain in trade side by side; (3) the falsified good may fail to supplant the genuine and itself disappear; (4) the demand for both the genuine and the falsified good may fall either permanently or temporarily; or (5) the demand for both the genuine and the falsified good may rise.

We shall now consider, by means of typical examples, the circumstances producing the five different types of reactions of genuine goods to the competition of falsified ones, which have been listed above. In selecting our illustrations, no implication is intended that the commodities chosen are more commonly or more extensively falsified than a host of others. Commodities were singled out either because they come within the writer's personal experience or because they seem to represent typical cases.⁸

Case (1) is typified by sole leather. As produced for centuries, it consisted of nothing but leather and such portions of the natural soluble substances of tanbark as were not removed in finishing the leather. So long as leather was sold by the "side," *i.e.*, by the piece, its weight was unimportant, except insofar as it was an index of thickness. When sole leather came to be sold by weight, however, a premium was put on "weighting" or "loading" by impregnation with

8. This part of the inquiry ought to include analysis of price relations. These, however, are so complex and so difficult to unravel that the writer as much as practicable has eliminated them.

heavy materials that are cheaper than leather. This result was accomplished by leaving in and adding to the leather excessive amounts of tanning extract,⁹ or by impregnating the leather with glucose,¹ and/or with epsom salts. Those who introduced these practices in the early stage were thus able to sell tanning extract, glucose, or epsom salts, as the case might be, at the price of sole leather. As the shoemaker and the consumer had no simple means of distinguishing between the "pure" and the weighted sole leather, a condition of unfair competition was created that ultimately compelled practically all tanners to adopt weighting. "Pure" sole leather has almost disappeared from commerce in the United States.

The limit for water-soluble substances in specifications for sole leather has climbed continuously upward. Prior to 1910 there were numerous tannages of sole leather of good reputation in which the water-soluble material was less than 25 per cent.² Since then there has been a widespread upward trend. In the War Department specifications for marching shoes issued in 1917, the maximum for water-soluble material in the sole leather was set as high as 26 per cent. Later this was raised to 28 and then to 30 per cent, which latter maximum was incorporated in the federal specifications for sole leather³ promulgated in 1924. This limit is now being raised to 33 per cent to conform with "good commercial practice." The

9. Cf. H. R. Procter, *The Principles of Leather Manufacture*. 2d edition, London, 1922, p. 360.

1. This practice is prohibited in a number of European countries as well as in Australia and South Africa. Adulteration by "the use of epsom salts, glucose, barium chloride or other weighting material is prohibited" in the specification "officially adopted by the Federal Specification Board" for the use of the government in the purchase of leather belting. See Standard Specification No. 37, "United States Government Specification for Leather Belting," U. S. Department of Commerce, Bureau of Standards Circular No. 148, October 10, 1923.

2. F. P. Veitch and J. S. Rogers, "Leather Investigations: The Composition of Some Sole Leathers," U. S. Department of Agriculture, Bureau of Chemistry Bulletin No. 165, Washington, 1913.

3. Master Specification No. 241, "United States Government Master Specification for Sole Leather," U. S. Department of Commerce, Bureau of Standards Circular No. 198, February 3, 1925.

figure cannot well go much higher, because the tanner cannot get much more into the leather without risk of resulting trouble from spewing of the load. Until recently, there were a few survivors of the old school of tanners who loaded leather much less than most of their competitors and had a trade reputation for making excellent leathers. Competition, however, has compelled them, one by one, to change their practices; but their leather is still less heavily loaded than that of the majority.

Neither the shoemaker nor the shoe wearer possesses a simple method for recognizing weighting. The production and consumption of weighted sole leather has continued until it has become well established and hallowed by time. Now, when the making of shoes has passed out of the hands of the shoemaker into the hands of the shoe manufacturer, who might employ chemists and other experts and therefore may purchase leather upon specification, the practice persists. Shoe manufacturers are principally concerned with the appearance of sole leather and its so-called grade, as judged by feel and thickness. Their principal concern is "cutting value"; the shoe manufacturer values most that leather from which he can cut the greatest number of top-grade soles. Color and appearance being constant, the shoe manufacturer grades his soles almost entirely by firmness, as judged by feel, and by thickness. With loaded leather he can cut further down into the poorer belly and flank sections that wear less well and get a greater number of so-called top grades, because of the false firmness and plumpness imparted by the load. It is claimed that no one is injured because, since practically all sole leather is weighted, competition adjusts the price so that the consumer is not mulcted. It is argued that well-wearing sole leather can be sold for less money; but the fact is overlooked that, while this may be true on the pound basis, it is untrue on the area basis; and it is the area basis on which sole leather is used. Since the purchaser has no easy standard of comparison, he is unaware of the fact that he may be buying shoes inferior in wearing quality and in power to exclude moisture. He is not, therefore, in a position to exert enough

pressure to influence in any considerable degree either the tanner or the shoe manufacturer.

Case (2) is typified by goods that serve purposes of conspicuous consumption, if at the same time they may serve for the investment of savings. They are commonly rare and scarce, like diamonds, or unique, like works of art. Works of art cannot be adulterated; they can only be imitated. Diamonds can be, but rarely are, adulterated; they are much imitated. Display goods of this type must be durable — else they cannot serve for the investment of savings. This is an important factor in the demand for gems and also, though to a somewhat less degree, in the demand for works of art and other unique objects. In addition, investment in gems brings with it the advantage that they can be turned into money almost at a moment's notice.

While it is true that the layman may not be able to distinguish paste from diamonds, yet, since the price is high and they have an incidental investment value, he takes the trouble, ordinarily, to buy them either from merchants of established reputation or in consultation with experts. For the average person, the possession and display of paste would not produce the same subjective satisfaction as the possession and display of diamonds, even tho the community in which the display is made be deceived. Imitations have not driven the genuine off the market.

Artificial sapphires and rubies cannot be compared with paste, for, as above explained, they are not imitations; they are artificial gems. When these artificial stones first appeared upon the market, it was feared that natural stones would greatly fall in price. This has not occurred; indeed, the demand has on the whole rather grown. Natural sapphires have become more fashionable and have risen somewhat in price, in spite of the large volume of very beautiful artificial sapphires on the market. Apparently, those who can afford to buy the natural stones continue to demand them; those who cannot afford them buy the artificial ones. Artificial stones are tending to drive off the market only the poorer imitations.

There can be no doubt that, if artificial rubies were pro-

ducers' goods, they would long since have determined the price of the natural gem. Whether, as is claimed, the competition of the artificial with the genuine article has been wholly without effect upon the price of the latter could be determined only after eliminating the effects of fashion,⁴ as well as of changes in price levels, in purchasing power of money, and in wealth. Unfortunately, the writer has failed to find price series for gems that could be made the basis for such an analysis. Still, it is significant that there has been a certain amount of fraud with litigation, and that in certain countries pawnbrokers no longer make loans on rubies, because they are not equipped to determine whether a stone is natural or artificial.

A work of art, such as a painting by Rembrandt or a table by Duncan Phyfe, is scarcer than a diamond; it is a unique object of considerable durability. It is prized only in part for its beauty; it is esteemed also because it is the work of Rembrandt himself or of Duncan Phyfe. No copy, however faithful, is held in as high regard. The production of replicas in whatever numbers or at a price ever so low does not diminish the esteem in which the work from the hand of the master is held. The genuine and the copy exist side by side. Indeed, the wide distribution of copies of works of art, provided they are frankly represented as replicas, draws attention to the originals, thus enhancing their usefulness by making their possessors more conspicuous. These considerations render it easy to understand why collectors go to great expense to publish profusely illustrated catalogs of their treasures. It is also easy to understand the many merchandising schemes designed to confer upon articles of commerce some uniqueness. The publication of limited editions of books or prints, with each copy numbered and signed by the author or artist; the production of a gown or a hat; the setting of a jewel in

4. Cf. J. Boyer, *La Synthèse des Pierres Précieuses*, Paris, 1909, p. 27. "Jusqu'ici la mode a accompli dans le domaine de la joaillerie plus de révolutions que la Chimie. Il y a 400 ans, le diamant valait quatre fois moins cher que l'émeraude et huit fois moins que le rubis. Aujourd'hui il les éclipsa de beaucoup."

but a single example — all are illustrations. Indeed, it is to the value placed upon uniqueness that we owe certain types of the specialty shop with its allegedly exclusive models.

Case (3) is that of a false commodity, which fails to supplant the genuine, but itself ultimately disappears. It is temporary and therefore unimportant. There is no need to discuss examples at length; anyone can readily supply them from his own experience. All imitations so poor they serve no useful purpose fall in this class: cutting tools made from iron or cheap soft steel, for instance, and many new inventions which do not fulfill the hopes of their inventors.

Case (4), as indicated, has two forms, one in which the effects are permanent, the other in which the effects are temporary. The permanent form is typified by display goods that it is impossible or nearly impossible to distinguish from their imitation counterparts. In consequence, the potential consumer loses confidence in the goods as a class. Since the goods are not necessities, both the genuine and the false good may be eschewed.

If imitations of a unique or very rare object are practically indistinguishable from the original, the result may be to lessen greatly the demand for the original. There may be so great uncertainty concerning the authenticity of objects of this class that many collectors refrain from gathering them. Certain artists who trained many scholars in their own peculiar style, or whose works were widely imitated or copied by contemporaries, illustrate the point. The difficulty of determining with certainty whether or not a given painting is by the artist himself, by a member of his school, or is merely a good contemporaneous copy, admittedly affects demand. The demand for both the genuine and the imitation is lessened.

Display goods which are not very durable and which, in consequence, are little suitable for the investment of savings are in high degree affected permanently by the competition of imitations and substitutes. The fur of the fox furnishes a striking example. "The genuine silver pelt . . . is so individual that to date it has defied every attempt at imitation. The first demand in the London market . . . was not for a silver,

but for a jet black fur. Pelts of this variety brought as high as \$1,500 each. Eventually, dyers learned to imitate these jet black furs so perfectly that today a genuine black pelt brings scarcely \$100. Imitators have never been able to reproduce silver fox furs and that is why prices for them continue high. . . . The only way that this fur can be imitated is by treating each hair separately. That, of course, is too expensive to pay a profit."⁵

It is in the class of non-durable display goods that imitations detract most from the esteem in which the genuine is held. The exclusive model is copied first for the so-called better-class trade, and finally with inexpensive materials and with cheap workmanship for the masses. By that time, it has dropped so low in the regard of those who demand uniqueness and are able to pay for it, that they seek and obtain new exclusive models, which again go through the process of reproduction; and this is one of the principal causes of changes of fashion. Our present age differs from its predecessors only in that modern means of reproduction and of communication have immensely accelerated the process.

Display goods, however, do not represent the only commodities which may be affected unfavorably by imitations or by adulterated goods, because they, as well as the substitute, may be avoided. A case in point is the practice, now largely abandoned, of sweating green, unripe oranges in simulation of yellow, ripe ones. This is a violation of the food law under that clause which declares an article of food to be adulterated "if it be mixed, colored, powdered, coated or stained in a manner whereby damage or inferiority is concealed" (see footnote, p. 2). The inferiority that is concealed by sweating is immaturity. The sweated unripe orange is an adulterated orange, and the courts have so held. The purpose of sweating was to enable unscrupulous shippers to market fruit early in the season for the holiday trade when prices are high. Such fruit injured the market for fine ripe fruit that was shipped subsequently. Prices were depressed because the public

5. Labert St. Clair, "How the Fox Industry Saved Itself," *Nations Business*, xviii, 236 (May 1930).

acquired an antipathy to oranges in general that lasted until, with the lapse of some weeks, buyers gradually learned that the quality of oranges had improved. In later years, after the sweating of unripe oranges had been given up because of the operations of the food law, the post-holiday slump in demand disappeared. It is obvious, then, and so recognized by the trade, that the adulteration of oranges by sweating reacted unfavorably upon the producers of unadulterated ripe oranges.⁶

Loss of confidence in a whole class of goods because of falsification often smooths the path for a substitute. Loading, as we have seen, makes it possible to cut soles from poorer portions of a side of leather than would otherwise be possible. The poor quality of some sole leather has been a factor in facilitating the introduction of substitutes, such as rubber or composition soles. It is said, furthermore, that the adulteration of leather belting and the use of inferior portions of the hide, have greatly facilitated the introduction of belts fabricated from cotton. There is grave danger that an industry which practices universal or very widespread falsification may in the end kill the goose that lays the golden eggs.

In the temporary form of case (4), the demand for both the genuine and the falsified commodity first falls; this fall is then followed by the establishment of an equilibrium, such that only the bulk of the goods in circulation is falsified,

6. Somewhat analogous in effect, tho brought about by a different consumer reaction, is the case in which the falsified good is one of a pair of complementary goods. Before the adulteration of kerosene with gasoline was prohibited by law in the 1870's, a very large proportion of the kerosene sold for household use was thus adulterated. It was so dangerous that fires and deaths from lamp explosions were common occurrences. There can be no doubt that fear of such accidents restricted the use of lamps as well as of kerosene. On the other hand, the substitution of a falsified good is often prevented or delayed if it is one of a pair of complementary goods, because it cannot be used with the other good. A box maker may very much wish to use nails made of some cheap kind of steel, but may refrain from doing so because they may not fit his particular kind of box-making machines. To purchase new ones may involve a heavy investment. Or a maker of cartons, wishing to substitute for gum made from cassava starch some sort of cheaper imitation of it, may not be able to do so, because it is not suitable for his particular machinery.

while the volume of genuine goods is small or even negligible. The history of the unsweetened evaporated-milk industry of the United States presents an example of this kind. The first unsweetened concentrated (*i.e.*, evaporated) canned milk produced in the United States was a fairly concentrated article. As more and more concerns began to manufacture it, a less concentrated milk appeared upon the market, in part because some manufacturers lacked the skill to produce the concentrated product, in part because they wished to reduce their costs in order to undersell their competitors. Force of competition compelled manufacturers one by one to reduce the concentration of the milk, that is, the quantity of milk in the can. The law was powerless to halt this progressive lowering of quality, because evaporated milk being a new product, there existed no generally accepted standard, no universally recognized trade practice. Finally, the highly concentrated product practically disappeared and much of the evaporated milk was little different from ordinary unconcentrated market milk.

The consumer, being unable to tell by inspection whether evaporated milk is highly or only slightly concentrated, judged its quality by its power to color coffee. When the quality dropped to a certain level, he found the coffee-coloring power of evaporated milk low and its use uneconomical. He began to cease buying; the demand for all unsweetened canned milk fell off. Manufacturers became alarmed to such a degree that finally, through the mediation of federal officials, a standard for evaporated milk was agreed upon and promulgated as a guide for food control officials. Manufacturers of 95 per cent of the total output signed an agreement to abide by the standard. By manufacturing according to this standard, they established in time a general practice to the existence of which witnesses would testify. Thus the manufacturers themselves ultimately placed the government in a position to enforce the standard before the courts. Unsweetened, evaporated milk has been manufactured according to this standard ever since.

Case (5) — the demand for both the false and the genuine

commodity is increased — is typified by the adulteration of coffee with chicory. Originally, chicory was simply an adulterant. In certain European countries, however, many persons were too poor to afford unadulterated coffee, so that a mixture of coffee and chicory was all they ever tasted. There is little doubt that the adulteration of coffee with chicory made coffee drinkers of large groups of persons in Europe for whom pure coffee was beyond reach. The demand for coffee was increased. When the falsified commodity has merit and is cheap, it may be brought within the reach of consumer classes that cannot afford to purchase the genuine. It engenders new consumer habits and these in turn may lead to increase in consumption of the whole commodity class, genuine and falsified together.

We see, then, that the outcome of the competition between genuine and falsified goods depends upon the degree of substitutability of the one for the other and upon the consumer's knowledge or ignorance of the nature of both commodities. If the falsified commodity cannot serve the same purposes as the genuine in any material degree, it will not, except perhaps very slightly and temporarily, affect the genuine commodity at all. If a good is a perfect substitute for another, price will be the principal factor determining which good survives. Between the two extremes, it is possible to find examples of all intermediate equilibria.

Knowledge in regard to the true nature of the good is not the same as knowledge in regard to the true degree of substitutability. The two sorts of knowledge do not necessarily go together. Twenty years ago, there was on the British market canned concentrated skimmed milk, skimmed by centrifugal separators and plainly branded as "machine skimmed." Many persons interpreted this phrase to indicate superiority and used such milk for infant feeding in preference to whole milk, although they must have known it was skimmed. They evidently did not know that milk, however skimmed, is not wholly substitutable for whole milk in point of food value. In consequence, the health authorities prohibited this particular form of branding.

If the consumer has perfect knowledge, then the equilibrium between the two commodities ultimately reached will depend upon price. Some consumers may prefer the falsified article with full knowledge that it is false and that it is an imperfect substitute for the genuine, if the price is low enough; others, at a given price, prefer the genuine. It may even happen that the falsified article drives the genuine off the market, or very nearly does so. This, as we have seen, is the more likely to occur, the more perfectly a falsified article is a substitute, or the lower its price relative to the genuine, or both. With perfect knowledge assumed, the case becomes merely that of substitute commodities, neither of which is falsified — in other words, the case so often analyzed by economists. The two commodities are very apt to circulate as different qualities or grades. A price differential is established between them. The quantities of each that will be consumed will depend upon their relative ability to satisfy a need, upon relative prices, and upon disparity of purchasing power, subject to certain conditions of supply to be discussed later.

Wheat furnishes an example in which the proximate purchaser is informed and in which that knowledge is supplemented by the national Grain Standards Act⁷ (see p. 25). Moreover, practically all users of flour, whether bakers or housewives, have a relatively simple criterion in bread by means of which to distinguish broadly between good and poor flour. The wearer of shoes has no equally direct and simple criterion to enable him to distinguish between shoes with weighted and shoes with unweighted soles. The situation in the wheat trade thus has served to maintain a distinction and price differential, first, between different kinds of flour, and, ultimately, between high-quality and low-quality wheat, as these differentials were not maintained between unweighted and weighted leather when weighted leather first came upon the market. If users of wheat and flour were not well informed by this time most wheat would probably be adulterated as

7. 39 Stat. 482-5.

most sole leather is. Instead, only a portion of each crop is so manipulated.

Knowledge is more likely to be acquired by purchasers of certain types of goods than of certain others. Falsified goods that are soon consumed may not maintain themselves upon the market, because through trial and error purchasers acquire knowledge. An article with a short life that must often be replaced offers purchasers frequent occasions to make comparisons between successive purchases and, in this manner, to educate themselves. Some women making frequent purchases of the same commodities for household use learn to distinguish between the genuine and the imitation, as when they learn to tell all-wool from part-wool cloth. Since some consumers, however, become educated and others do not, both commodities may remain upon the market even without price differentials. Consumers' goods are more likely to be profoundly affected by the competition of falsified or imitation goods than producers' goods, for the simple reason that ultimate consumers are much less likely to be informed than producers.⁸

The evidence presented supports the following generalizations: Case (1), in which the debased commodity drives the genuine very largely off the market, may occur if the falsified good is, seemingly or really, a nearly perfect substitute for the genuine, and if at the same time the purchaser lacks knowledge of the nature of the two commodities, as well as of the true degree of substitutibility of the falsified for the genuine.

Case (2), in which both commodities remain on the market, may occur if the falsified good is not a very good substitute for the genuine, and if all purchasers or certain classes of them have knowledge of the true nature of the commodity and of the degree to which the false may serve the same purposes as the genuine.

Case (3), in which the falsified commodity disappears, may occur if the false good is not in any material degree a substitute for the genuine.

8. Cf. Downey, *op. cit.*, pp. 261-2.

Case (4), in which the demand for both commodities is reduced, may occur when the two commodities are indistinguishable or nearly so and yet the two are not substitutable one for the other.

Case (5), in which the demand for both commodities is increased, may occur when the two commodities are indistinguishable or nearly so and also substitutable one for the other, at least to a considerable degree.

III.

The circumstances outlined in the preceding paragraphs seem to be the basic conditions that determine the outcome of competition between genuine and falsified goods. There are, however, certain other circumstances that influence this competition. These have to do not so much with the character of the goods themselves, or with consumer ignorance or knowledge, as with the conditions of production of the goods, the elasticity of supply and the circumstances of demand and consumption. Some of these different factors will now be discussed.

Whether increasing, constant, or diminishing costs obtain in production, influences greatly the equilibrium reached in the competition between genuine and falsified goods; but this question will not be taken up. Whether the genuine, the falsified, or both goods are joint products must also affect the final equilibrium profoundly for, obviously, a joint product will hold its place upon the market more tenaciously than one produced independently. Cases of this kind are especially common in the chemical and in the food industries. Two cases in point from the vinegar and from the cooking-fat industry (see pp. 23 and 30) are presented in some detail below.

Whether the genuine article and its imitation or adulterated competitor are produced by different enterprises, independent of one another, or by a monopolist, is also of importance. If both are produced by the same enterprise, such a concern, as it approaches monopoly control, will be able more and more to proportion production of the two articles so as to

maximize profits. These proportions will vary from case to case. Ordinarily, the cost of production of the inferior article is less than that of the superior. If, in the absence of the superior product from the market, the public will take the same quantity of the inferior as it would of the superior if the superior were alone available, the monopolist will naturally cease producing the superior good. Cases in which the same quantity would be taken are rare, however, even tho nearly all consumers lack a very definite standard of comparison. The monopolist will then produce as much of the inferior product as the public which can be deceived will accept at the monopoly price, and only a small amount or none at all for the informed and discriminating. In short, in a monopolistic system conditions are especially favorable for the driving off the market of genuine by adulterated or imitation goods.

In the analysis up to this point, it has been assumed, tacitly, that the supply of the genuine good and of its falsified counterpart are both elastic. In a few cases, however, the supply of both is highly inelastic and the demand for the service which either commodity may in some measure supply is highly inelastic as well. Then both commodities may remain on the market, tho all other conditions be favorable for the disappearance of the genuine. For example, good and bad coins circulate together when this circulation itself is not in excess of the demand for it.⁹ In a country blockaded during war, many analogous cases arise. In Germany, the supply of fresh rubber as well as of reclaimed rubber and rubber substitutes was limited; all of these commodities were in circulation at the same time.

Inelasticity of supply is especially common where the article is a joint product or derived from one. For the purposes of this phase of the discussion, joint products may be considered as of two sorts:

(a) *Those of which the production is small relative to the total supply of the class of commodity to which they belong.* Argol, as crude cream of tartar is known in the trade, is an example; it is a joint product with wine. It belongs to the commodity class of baking-powder acids.

9. R. Giffen, "The Gresham Law," *Economic Journal*, i, 304, 1891.

(b) *Those of which the production is large relative to the total supply of the class of commodity to which they belong.* Hydrochloric acid in former times was in this class. The LeBlanc process, formerly the only commercial method of making sodium carbonate, produced hydrochloric acid in amounts far in excess of any use that could, for many years, be found for it. It had to be poured away and was a great nuisance.

If the falsified good is a joint product and produced only in small amount, case (a), it cannot exert much effect upon the demand for the genuine, since the supply is small, and both will remain in the channels of trade. If, on the other hand, case (b) obtains, we have the case discussed below in connection with cooking fats. The tendency of the demand for the genuine to fall is reinforced.

If the genuine good is a joint product, it is obvious that it, as well as its falsified counterpart, will remain in the channels of trade whether it be produced in small volume, case (a), or in large volume, case (b), provided the price of the genuine is not depressed by its false counterpart below the costs of recovery. The genuine has the advantage that as a joint product it must continue to be in potential supply, so long as its twin joint product is produced.

If a joint-product article is in limited supply, case (a), and at the same time is a producers' good, a very serious condition may arise from the competition of a cheaper substitute for the manufacturer who uses the former. Such a case may be found in the baking-powder trade. The two most important types of baking powder are made, respectively, with cream of tartar and sodium aluminum sulfate (the S.A.S. of the trade). Cream of tartar is a joint product of wine making; S.A.S. can be produced in unlimited quantities by the chemical industry. With increase of population and growing demand for baking powders, the manufacturers of cream of tartar baking powders had to pay rapidly mounting prices for cream of tartar. Their competitive position became worse and worse, until in at least one case, with which the writer is familiar, the manufacturer of a cream of tartar baking powder changed his formula, though thereby the very great good-will value of his brand was endangered.

We are now in position to add certain modifying circumstances to the conditions that are necessary for the occurrence of cases (1), (2), and (4), as summarized at the end of Section II of this paper.

The occurrence of case (1), in which the falsified good very largely drives the genuine off the market, is favored if the falsified good is a joint product; if the commodities are consumers' goods; if the commodities are produced by a monopoly.

On the contrary, case (2), in which both commodities remain on the market, is favored if the supply of both the genuine and falsified good is highly inelastic and demand is inelastic as well; if the commodities are producers' goods; if the goods are soon consumed so that they are repeatedly purchased at short intervals.

Case (4) is favored if demand for the commodities is elastic. This case is commonest in the class of luxuries, or at least of not-indispensable goods.

IV.

The circumstances hitherto considered are inherent in the nature of the goods, in the nature of supply and demand, and in the psychology of purchasers. Extraneous circumstances dependent upon legal enactments, however, not infrequently greatly modify the outcome of the competition between genuine goods and their falsified counterparts, so as to prevent the occurrence of case (1). The vinegar industry presents such an example.

In the northern part of the United States, the preferred vinegar is cider vinegar. From time immemorial, it has been made from apple cider by fermentation. Originally, cider for vinegar making was produced solely by crushing and pressing whole apples. When the commercial industry of drying apples arose, it produced in large amounts a waste product — peels and cores. These began to be pressed for cider to make vinegar, but, as this waste rapidly ferments and spoils, the making of vinegar in this way was highly seasonal. Manu-

facturers then began to dry the by-product material after having bleached it with the fumes of burning sulfur. It was thus made less perishable so that, at any convenient time, it could be soaked in water and pressed to obtain a sort of cider from which a vinegar could be made that most consumers could not distinguish from vinegar made from the cider of fresh apples.

These developments created the greatest disturbance in the industry. The manufacturers of vinegar from fresh material were unable to compete, for the consumer was unable to distinguish between the products. The old-line manufacturers were driven to appeal to government officials for protection against this form of competition. They desired that the new product be required to be branded as an imitation. The officials, however, held that it was not an imitation, but a vinegar made from a new type of material, and that the consumer was entitled to be advised of that fact so that he would be in a position to make a free choice. They, therefore, ruled that the article should be labelled as "dried apple" or "dried apple product" vinegar.¹ This ruling was contested in court, but the position of the government was upheld. At the present time, therefore, both kinds of vinegar are on the market. Since the consumer can rarely tell them apart except by reading the label, undoubtedly in time the price of dried apple-products vinegar, a joint product with dried apples, will be a major factor in fixing the price at which the fresh-apple cider vinegar can be sold. Fresh-apple cider vinegar is never likely to go off the market altogether, partly because for a short time after the apple harvest it can be made profitably from fresh apples, partly because there are many places where there is a surplus of apples but no apple-drying industry.

It may be questioned whether this case is a true example of falsification. The vinegar industry does, however, present abundant opportunity for the skillful adulterator. It is

1. "Labeling Vinegar Made from Evaporated Apples," U. S. Department of Agriculture, Bureau of Chemistry Service and Regulatory Announcements No. 28, Section 394, issued February 14, 1923.

possible, for example, to make from acetic acid, certain mineral salts, and apple pomace² or a little boiled cider a vinegar that so closely resembles cider vinegar that it is difficult to distinguish the two by the senses. If the acetic acid and the salts are pure and the pomace sweet and sound and not decomposed, the vinegar produced is neither less nor more wholesome than cider vinegar; yet it is unquestionably imitation cider vinegar. Nevertheless, if the imitation is skillfully made, the two may serve the purposes of many consumers equally well. Since the imitation can usually be produced more cheaply, it would normally, no doubt, in time drive the genuine very largely off the market. The food laws, however, require this article to be labelled "imitation" vinegar, and this restricts its sale. If it were not required to be so labelled, it would probably drive both cider vinegar and dried apple-products vinegar off the market to a very much greater extent than it is actually doing.

Another manner in which legal enactments may intervene in the competition between falsified and genuine goods is through the establishment of a system of grades. Of this, wheat furnishes an example. So long as millers bought only near-by wheat or parcels that they inspected directly or by sample, there was little to be gained through adulteration. Price was adjusted according to quality. When, however, buyers and sellers resided far apart, a grading system was developed which makes of wheat not one commodity, but as many distinct, though interrelated commodities, as there are grades and well-recognized types. The grades of wheat, established in accordance with an act of Congress, have broad zones between the minimum permissible for a given grade and the minimum permissible for the grade next above. Parcels above the minimum may, therefore, be adulterated by the addition of water, foreign seeds, and trash without changing the grade. The grading system sets limits to the magnitude of adulteration, for if it exceeds a certain limit, the wheat is thrown into the next lower grade. The result

2. Apple pomace is the residue left behind in the press after the expression of the cider.

is that, wherever it is practicable and profitable, wheat is adulterated to the minimum permissible for the grade. To a very large extent, wheat that is near the top of its grade is driven out of the channels of trade; nearly always the bottom of the grade is delivered on contract whenever facilities for debasement are found. Wheat in Chicago is almost all of contract grade. Wheat better than the minimum of the grade still remains in commerce, chiefly because of the preference of millers for country-run or sample wheat. The operations of the grading system, the scarcity of really good wheat, and the preponderance of the well-informed among buyers tend to limit adulteration in degree and to keep different grades in circulation in commerce.

V.

So far, we have considered primarily the effects of falsification upon the demand for genuine goods, without inquiring into the effects upon the national economy and the interests of individual final users. To stop at this point would be like limiting an inquiry into the debasement of money to the formulation of Gresham's Law without going on to consider the effects of the operations of that law upon the national economy or the common man. Accordingly, this section is devoted to the exposition of some of the aspects of falsification as they affect the national economy and the final user.

The choice of criteria to evaluate these effects must depend upon the objectives of the particular discussion. For present purposes, the criteria which have been chosen may be formulated as follows:

1. A trade practice is good when, and if, it tends to lessen the expenditure of human energy, or the dissipation of natural resources, required to supply a given service.
2. A trade practice is good when, and if, it tends to bring closer together the customers' anticipations of services and the services that he would in fact enjoy from the use of the trade article; a practice is bad if divergence of anticipation and real results is brought about.
3. A trade practice is bad when it increases the hazards or the costs of doing business.
4. A trade practice is bad when it encourages dishonesty.

5. A trade practice is bad when it necessitates governmental interference.

The first of these is, of course, a long-recognized principle; the third, fourth, and fifth are self-evident. The second, however, so far as the writer knows, has not hitherto been formulated with precision. While it is a commonplace that waste can result from leading consumers to believe an article will render a service which it will not in fact render, this older form of statement is obviously inadequate to cover some of the cases presented in this paper—"lard compounds," for example (see p. 30). The older notion must be supplemented by the idea that suppression of knowledge of the real capacity for rendering a service that is (or may become) desired is wasteful also. A customer's inability to distinguish a new article from an old one — as when the maker of the new trades on the reputation of an older one — may for a long time prevent the customer's becoming familiar with the special merits of the new one.

Judged by our first criterion, many forms of falsification cause waste without necessarily seeming to affect the interests of final users. It is a fallacy to argue that when the falsification of a commodity has become general, it is never of import to the public welfare, since demand and supply determine the price. The debasement of unsweetened evaporated milk is wasteful because to transport a given volume of milk from the producing sections to the consuming centers requires fewer freight cars, less coal, and less of all the elements that go into the costs of transportation, if the volume is greatly reduced by a high degree of concentration, than if it is but slightly reduced because of slight degree of concentration. In the more highly concentrated form, the number of cars required is less and the consumption of tin plate relatively small. Furthermore, the labor expended in filling into cans, sealing, sterilizing, labelling, casing, and selling is less. The only important increase of cost that has to be set against these wastes is the fuel needed to drive off water in boiling the milk down further.

The weighting of sole leather is an unnecessary manufacturing expense; and the costs of handling, storing, transporting, etc., are higher for loaded than for unloaded leather. Many millions of pounds of glucose and of epsom salts are wasted. It was estimated during the war that to produce the glucose used to weight sole leather the starch obtained from 600,000 bushels of corn was required each year.

The adulteration of wheat also results in waste. The added dirt, trash, weed seeds, or foreign cereals must be removed by the miller before he can begin to grind the wheat. The cost of adding and transporting the foreign matter, as well as the cost of its removal, are added to the costs of production and are of necessity paid by some section of the community. If the adulteration has consisted in the addition of damp wheat or water, there is liability of the wheat's spoiling through heating, *i.e.* fermentation in the storage bins. Such spoilage leads, of course, to waste. If it begins, it can only be checked by drying the wheat, which is usually accomplished by aeration through elevating the grain from one bin into another — not an inexpensive procedure.

A good which, because it is adulterated, is incapable of filling the need for which it is purchased, or is capable of doing so only imperfectly, is likely to be thrown away or wasted as soon as its inadequacy is discovered. If it is not discarded and happens to be a tool or an appliance, waste of not a little labor may result. Or it may simply wear out more quickly than the genuine would. If a pair of shoes with poor soles wears out in half the time that a pair with good soles would, and if the consumer is not harmed because the price is low, it does not follow that there is no waste, viewed from the national standpoint. There may be waste of labor, because the quantity of work put into both kinds of shoes is not very different. Not merely the life of shoes, but also the life of such goods as machines and houses is determined by the life of the component that wears out soonest and cannot be replaced without extensive reconstruction of the whole. The most perishable component determines the obsolescence of the whole. If falsified material is used in such goods, it may

determine the life of the good, with the result that the remaining components of the good may have to be junked before they, too, are worn out.

On the other hand, there are many cases in which the substitution of a falsified good causes considerable savings in the factors of production. Falsification may be in the national interest and yet involve fraud upon the individual purchaser. Many imitations and occasional adulterated goods are useful, serviceable, and produced at low cost. Dried apple-product and imitation-cider vinegar, described in a preceding section, are cases in point. The costs of production are less than those of genuine cider vinegar; less land, labor, and capital are required. Without the intervention of the food law, purchasers would be deceived; they would be defrauded also until competition forced down the price. At that point, purchasers would not be penalized because they would be paying a competitive price based on production costs. They would be deceived, it is true, and yet, viewed solely from the national welfare, there would be economies rather than wastes.

Thus we see that, according to our first criterion, falsification may result in good or in harm to the nation's or to the individual's interest, but not necessarily to both in any given case. A practice may cause waste of labor and natural resources without harm to the interest of the individual, and *vice versa*. The examples about to be presented indicate that this is also true by our second criterion. Adulteration may cause waste by creating prejudices which delay the general use of improved products. For instance, sometime ago, it was found that the addition of about 10 per cent of petroleum distillate improved lard oil for metal cutting, etc. Soon certain manufacturers added excessive amounts of the cheap distillate without informing purchasers. Many users then refused to buy a blend with any mineral oil at all in it.³ The practice of adding a small amount of mineral oil to lard oil was a good practice, since, in the language of our second

3. C. E. Carpenter in *The Houghton Line*, 34, ii (1925), issued by E. F. Houghton and Company, North Philadelphia.

criterion, it tends to bring closer together the customer's anticipation of services and actual services. Had the blend of mineral and lard oil been marketed as such, that is, without the deception that is the essence of adulteration, consumers would soon have discovered its superiority to their own advantage.

Many new commodities begin their careers as imitations of other goods or as adulterated goods. Being cheap, they are within the means of classes of the community, for whom the genuine goods are unattainable. They may contribute to raising the standard of living and to creating new consumer habits, often a by no means inconsiderable national gain. Coffee adulterated with chicory (see p. 17) and the cooking fats known as lard compound are good examples.

Adulterated lard was sold brazenly for more than a decade as refined lard, until threat of restrictive legislation caused producers to brand it as "lard compound" or "compound lard." Both articles then remained on the market, in part because both are joint products: lard with pork, compound with beef and cotton, for it contains large proportions of beef stearin and cottonseed oil. Moreover, distinctive branding enabled consumers who prefer lard to differentiate the two fats. Subsequently, a new type of cooking fat appeared, made from vegetable oil, principally cottonseed oil, hardened by a chemical process known as hydrogenation. The manufacturer of it soon realized that a large part of the public has a prejudice against animal cooking fat. The product was given a distinctive name and was advertised as a new solid cooking fat, wholly of vegetable origin.

The success of this course was so great that other manufacturers adopted it, and there are now on the market a large number of good cooking fats sold under distinctive names. In the trade, they are known generically as vegetable shortening. During the past year the curious situation has arisen that meat packers have begun to refine and manipulate lard, the original genuine article, so as to imitate its own imitation, vegetable shortening, and to market it under distinctive brand names and not as lard at all!

The sharp difference in the marketing methods of those who introduced adulterated lard and imitation lard and of those who later introduced vegetable shortenings illustrates nicely our second criterion of the effects of falsification. In the first period, the user was to a large extent kept in ignorance of the nature of the product. No special demand was created for compound. In the second period, the user was advised of the vegetable nature of the newer types of cooking fat. In the first period, compound traded on the reputation of lard; in the second, it stood on its own merits. Compound has certain merits of its own as compared with lard. For a long time, the public was kept from recognizing these merits, which was in the interest of neither the nation nor the individual. For a long time, there was delay in the full utilization for food purposes of cottonseed oil, which after lard is the country's most important fat. Many thousand tons went into the soap kettle that might have been used in the kitchen.

In buying most commodities, and nearly all producers' goods, the purchaser has to depend on himself for his protection against debasement. This has necessitated the maintenance of testing laboratories by manufacturers and others, and the preparation and enforcement of elaborate and detailed specifications. Not all the cost of these operations is to be charged to the prevention of falsification, but a large proportion is. The expenditure in labor and materials that would be unnecessary in the absence of falsification is impossible to estimate, but it is large. The costs of doing business are increased.

Falsification creates much unfair competition and great dislocation in industry. Business men are subjected to unforeseeable hazards of obsolescence, and these of necessity are accompanied by wastes, the extent and magnitude of which it is quite impossible to appraise. The hazards of doing business are magnified.

Hoarding is encouraged by falsification if the goods are more or less durable, and the supply inelastic. Wheat is probably more extensively hoarded because it is often debased

to the bottom of its grade than it would be if it were not. Hoarding occurs especially in years when the general quality of the crop is poor. In such years, millers and dealers favorably situated near those regions producing the higher qualities of wheat purchase and store large quantities of high-grade wheat soon after the harvest. They fear that later in the year they may be able to obtain such wheat only at exorbitant prices, or not at all.

Against most unfair competition arising from falsification the business man is unprotected by statute. Often his only recourse is to falsify his own goods — to become dishonest. The effects upon business ethics and upon the tone of the business world are undoubtedly profound and evil.

The practice of falsification has necessitated much governmental interference. Apart from any objections that might be raised on grounds of policy, such interference represents a material drain on a nation, even tho control of falsification is exercised over only a few classes of commodities. In the United States, these are principally articles involving the public health, like foods and drugs; or articles either used by farmers or sold by them like insecticides, fungicides, and seeds; or dairy products and grain. The appropriations for the administration of these laws represent but a fraction of the total costs to the nation, for of necessity the honest concern is in some measure handicapped in the course of the attempts to suppress the dishonest. Meeting the technical requirements of the law adds to the cost of doing business, even for the honest man. The general costs of producing and distributing go up, to say nothing of the withdrawal from direct production of the considerable number of enforcing officials. The total costs to the nation are as impossible to estimate as the cost of crime, or of any specific form of crime. Moreover, governmental interference tends to crystallize trade practices, to discourage progress and inventiveness, and to delay the introduction of new and meritorious substitute commodities. These are factors too little regarded in the drafting of bills to protect consumers from fraud and

business men from unfair competition. Since in the modern world there is bound to be a great increase in this general type of legislation, the need to consider carefully all economic implications in each case cannot be emphasized too strongly.

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VELOCITY CONCEPTS AND PRICES

SUMMARY

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I. INTRODUCTION

The purpose of this article is to urge: first, that the concept of velocity of circulation of media most widely expounded in current economic literature fails to account in any degree for price level fluctuations; and secondly, that the term must be redefined and restated in quite a new sense before its position in monetary and credit theory will be made secure.

Before proceeding with the main body of the argument, we must clearly distinguish three concepts of velocity. The term is almost universally used to signify "turnover" of media: the number of times that a unit of media is exchanged, on the average, against commodities, services, or securities per unit of time. It may be computed for the individual per unit of time, if his entire money income is spent in the period received, by dividing the average quantity of media in his possession into his total expenditures; and for all members of society per unit of time, if their entire money incomes are spent in the period received, by dividing the average quantity of media in their possession into their total expenditures.

The quotient obtained in either case represents the average number of times that a unit of media is spent per unit of time.

Two variations of its meaning as above defined may be made. In one sense it may represent the turnover of media used for production purposes: the number of times that a unit of media is exchanged, on the average, by business men for the services of the agents and factors of production per unit of time;¹ and in a second sense, to the turnover of media used for consumption purposes: the number of times that a unit of media is exchanged, on the average, by consumers for consumer commodities and services per unit of time. Let the former be known as the "velocity of business incomes"; and the latter, as the "velocity of consumer incomes."

A second concept is much less widely recognized. The term is sometimes used to indicate changes in the *unspent* proportion of money incomes (or changes in unspent balances of money or credit per unit of time) of consumers and business men. Velocity of this sort may be computed for the individual by dividing his total money income into his unspent balance of money or credit per unit of time; and for all members of society by dividing their total money incomes into their unspent balances of money or credit per unit of time.² The percentage figure so obtained represents the proportion of money incomes that remain unspent per unit of time. To distinguish this concept from the other two, let it be known as the "balance" concept of velocity.

1. Since the government, including both the Federal government and its subdivisions, is a producer of goods and services, it will occupy a position in the analysis on this and subsequent pages closely analogous to that of business men who are also engaged in the production of goods and services. The government, like business men, through its productive activities may alter, altho not necessarily to the same degree nor in the same direction, the velocity of circulation of media in any one of the three ways in which the concept is defined and analyzed in this article.

2. Unspent balances per unit of time must not be confused with average balances maintained throughout a unit of time. To make this distinction clear, let us use a numerical illustration. Assume that consumers' money incomes are \$100,000 per month and that consumers spend \$90,000 per month. Unspent balances per month are \$10,000; while average balances maintained by consumers throughout the month are approximately \$55,000.

The third concept represents a redefinition and a restatement of the term. It is conceived of as a "ratio of total expenditures to total money income" — for brevity called the "expenditure ratio." The "expenditure ratio" is defined as the *spent* proportion of money incomes. It may be computed for the individual per unit of time by dividing his total money income into his total expenditures; and for all members of society per unit of time by dividing their total money incomes into their total expenditures. It may be used in two different senses. In one sense it may refer to the spent proportion of money incomes of business men; and in a second, to the spent proportion of money incomes of consumers. In order to differentiate clearly the two uses of the term, let "expenditure ratio" in the first sense be known as the "business expenditure ratio"; and in the second, as the "consumer expenditure ratio."

Before the examination of velocity concepts can proceed, a further digression must be made, because of the variety of price level concepts, to indicate the different senses in which the term price level may appear in this discussion. Many variations of its meaning, based upon differences in the number and varieties of items included in its construction, have been developed. Sometimes it has signified an average or aggregate embracing the prices of commodities only. Frequently it has denoted an average or aggregate of prices of particular groups of commodities: raw materials, agricultural products, producer commodities, et cetera. At other times it has been broader in scope and more general in character and has included, in addition to the prices of commodities, the prices of services and securities. Whenever it may arise in subsequent discussion, its special meaning in each particular case will be clearly indicated.

In parts II and III of this article a critical examination will be made of the "turnover" and "balance" concepts of velocity as used by such eminent monetary and credit theorists as Professor Irving Fisher, Mr. J. M. Keynes, and Mr. R. G. Hawtrey. In part IV the relative merits of the expenditure ratio concept of velocity will be given careful consideration.

II. TURNOVER OF MEDIA

In *The Purchasing Power of Money*, Professor Irving Fisher has developed a concept of velocity which I have labeled the turnover concept. He defines velocity of circulation as follows:

"The important magnitude, called the velocity of circulation, or rapidity of turnover, is simply the quotient obtained by dividing the total money payments for goods in the course of a year by the average amount of money in circulation by which those payments are effected."³

His definition of velocity stated in substantially the same terms reappears on pp. 79-80 and in the Appendix on pp. 352-353 of *The Purchasing Power of Money*. His statement and analysis of the turnover concept, however, are confused with the balance concept; but for the present we shall confine our attention to the former, reserving the latter for discussion in part III of this article.

Since Professor Fisher is a recognized leader among quantity theorists and since he is a chief contemporary proponent of the turnover concept of velocity, his treatment will be given more detailed consideration than the treatment by Mr. Keynes and Mr. Hawtrey who have adopted in whole or in part, as have many other economists, the turnover concept expounded by Professor Fisher. Before proceeding to a critical examination of Professor Fisher's theory, however, let us discover the extent to which Mr. Keynes and Mr. Hawtrey have accepted the turnover concept.

In his recently published book *A Treatise on Money*, Mr. Keynes presents the following definitions of velocity:

"V [is] the average number of times that a unit of cash is used in transactions during [a given period], i.e. the velocity of circulation."⁴

"Let V = the velocity of circulation of the Cash-deposits, i.e.

3. P. 17.

4. Vol. i, p. 234.

the ratio of the total volume of money payments to the total volume of Cash-deposits."⁵

Altho Mr. Keynes' definitions of velocity are obviously restatements of the turnover concept, nevertheless his treatment of velocity differs from Professor Fisher's in two respects. First, Mr. Keynes distinguishes between the Velocity (V) of the Cash Deposits and the Efficiency (E) of the Total Deposits.⁶ He uses "the expression 'velocity of circulation' to denote unambiguously the velocity or rate of turnover of what is truly serving the purposes of cash, namely the Cash Deposits (excluding Savings Deposits)"; and the expression "Efficiency" to represent "the ratio of the Bank Clearings to Total Deposits (including Savings Deposits)."⁷ He introduces this variation into his theory because of the fact that in England Savings Deposits and Cash Deposits are not separately classified in banking statistics as are time deposits and demand deposits in the United States. Since Cash Deposits are synonymous with demand deposits and since Professor Fisher's V' is intended to apply to demand deposits and Mr. Keynes' V to Cash Deposits, the apparent difference between the two theories in this respect vanishes into thin air. Secondly, Mr. Keynes makes a distinction between two kinds of velocity on the basis of the use to which the funds are put. Mr. Keynes lets V_1 represent the Velocity of the Income Deposits (money spent by consumers for consumption goods); and V_2 , the velocity of Business Deposits (money spent by business men to hire the services of the agents and factors of production).⁸ "The expression V is an average of

5. Vol. i, p. 237.

6. Vol. ii, p. 22.

7. Vol. ii, p. 22.

8. Mr. Keynes' treatment of velocity does not essentially differ in this respect from my own except that I call the "Velocity of the Income Deposits" the "velocity of consumer incomes"; and the "Velocity of Business Deposits" the "velocity of business incomes." My terms are more comprehensive than those of Mr. Keynes, since his deal only with incomes on deposit at the bank while mine include, in addition to bank deposits, money incomes in the pockets of consumers and funds in the tills of business concerns.

(V_1 and V_2)."⁹ While Mr. Keynes introduces a few minor differences of this sort into this theory, his velocity concept is fundamentally the same as that of Professor Fisher.

In his summary statement of the Fisher equation in the 1927 edition of *Currency and Credit*,¹ Mr. Hawtrey recognizes the turnover concept, but he gives it a position of no significant importance in the development of his theory. In the 1923 edition, he identifies it closely with the balance concept of velocity.

"... if any circumstances affect the rapidity of circulation of money it can only be indirectly, by affecting balances."² It thus appears that both concepts are intimately related: that changes in turnover of media involve changes in unspent balances of money or credit and that both sets of changes arise from circumstances common to both. He therefore dismisses the turnover concept of velocity with the following statement:

"... little is gained by introducing ... the rapidity of circulation, into the quantity theory. It is better ... to approach the ... problem ... from the standpoint of the influences which may affect balances of cash or credit."³

Altho his dismissal of the turnover concept of velocity is not stated in such definite terms, nevertheless it is likewise implied in his 1927 edition.⁴

What importance do Professor Fisher and Messrs. Keynes and Hawtrey attach to changes in velocity, or turnover, of media in the determination of the general level of prices? According to Professor Fisher's analysis, changes in turnover

9. Vol. ii, p. 22.

1. "Over any period the total quantity of means of payment (the unspent margin), multiplied by the average number of times every unit of money or credit has changed hands in the course of business, must necessarily be equal to the total value of all transactions in which credit or money has passed." P. 36.

2. Pp. 48-49.

3. P. 49.

4. P. 39 and p. 41.

of media may produce fluctuations in the general level of prices:

"... a doubling in the velocity of circulation of money will double the level of prices, provided the quantity of money in circulation and the quantities of goods exchanged for money remain as before."⁵

Such an effect stands unchallenged by either Mr. Keynes or Mr. Hawtrey. The reader of Mr. Keynes' *Treatise on Money* is left with the vague impression that he takes it for granted that changes in turnover of Cash Deposits of one sort or the other, through their effect on quantity spent per unit of time, may produce changes in price levels;⁶ and Mr. Hawtrey appears to imply that changes in the turnover of media may affect the general level of prices in the same manner as changes in unspent balances of money and credit.

But Professor Fisher is interested in developing the thesis that "the quantity theory is true . . . in the sense that one of the normal effects of an increase in the quantity of money is an exactly proportional increase in the general level of prices."⁷ One way of upholding such a rigid statement of the quantity theory is to show, among other things, that turnover of media is a constant and does not therefore affect the general level of prices. Unless some pretension of the sort is made, changes in turnover of media may exaggerate or minimize the effects of changes in quantity so that the resultant changes in the general level of prices will not be exactly proportional to changes in the quantity of media — a consequence inconsistent with his rigid formulation of the quantity theory.

At this point Mr. Keynes and Mr. Hawtrey part company with Professor Fisher. They not only introduce the turnover concept into their theories but also imply that changes in turnover of media do practically occur and thereby modify the effects of changes in the quantity of media in circulation. Mr. Keynes holds that, if other conditions remain in equili-

5. *The Purchasing Power of Money*, p. 20.

6. Vol. ii, pp. 46-48.

7. *The Purchasing Power of Money*, p. 157.

brium, "there is a unique relationship between the quantity of money and the price-levels of consumption goods and of output as a whole, of such a character that if the quantity of money were double the price-levels would be double also. . . . Such an exact balance is, of course, only a theoretical possibility. In the actual world a change in anything is likely to be accompanied by some change in everything else."⁸ Likewise, Mr. Hawtrey states that the quantity theory is true in the sense that "given all the economic conditions, the prices of commodities are directly proportional to the number of units of value contained in the unspent margin of purchasing power."⁹ "But so long as this principle is subject to the limitation that *all* other economic conditions must be given, it is necessarily sterile,"¹ since "a change in the unit of value is likely to cause a number of other changes, so that the economic conditions are no longer all 'given,' and 'the prices of commodities will [not] change in exact proportion' to changes in 'the number of units of value in circulation.'"²

Even Professor Fisher nowhere makes a statement to the effect that velocity, or turnover, of media is a constant. The nearest approximation to anything of the sort is contained in the following:

"We come back to the conclusion that the velocity of circulation either of money or deposits is independent of the quantity of money or of deposits. No reason has been, or, so far as is apparent, can be assigned, to show why the velocity of circulation of money, or deposits, should be different, when the quantity of money, or deposits, is great, from what it is when the quantity is small . . . when we take into account conditions known quite apart from that equation, viz., that a change in M (money) produces a proportionate change in M' (deposits), and no change in V, V', or the Q's (T), there is no possible escape from the conclusion that a change in

8. A Treatise on Money, vol. i, p. 147.

9. Currency and Credit, 1927 edition, p. 34.

1. Ibid., 1927 edition, p. 36.

2. Ibid., 1927 edition, p. 35.

the quantity of money (M) must normally cause a proportional change in the price level (the p's)."³

If Professor Fisher intends to say in the above quotation that changes in quantity of media are independent of, and produce no changes in, the "velocity of circulation," it is equally true that he implies that "velocity of circulation" is a constant as far as changes in quantity of media are concerned. He states that "velocity of circulation" relative to quantity of media remains the same whether the quantity of money, or deposits, is great or small.

He admits, however, that changes in "velocity of circulation" may arise from sources other than from changes in the quantity of media. The following statement indicates his position in this respect:

"It [average rate of turnover] will depend on density of population, commercial customs, rapidity of transport, and other technical conditions, but not on the quantity of money and deposits nor on the price level. These may change without any effect on velocity. If the quantities of money and deposits are doubled, there is nothing, so far as velocity of circulation is concerned, to prevent the price level from doubling. On the contrary, doubling money, deposits, and prices would necessarily leave velocity quite unchanged."⁴

Of course he must grant that, no matter from what source changes in "velocity of circulation" originate, whether from changes in density of population, commercial customs, rapidity of transport, and other technical conditions or from change in quantity of media, changes in velocity if they occur, will affect the general level of prices. Therefore, his conclusion that "one of the normal effects of an increase in the quantity of money is an exactly proportional increase in the general level of prices" is not convincing, since changes in "velocity of circulation" may arise from sources other than from changes in the quantity of media and may thereby modify the effects

3. *The Purchasing Power of Money*, pp. 154-157.

4. *Ibid.*, p. 153.

of a given increase in the quantity of media upon the general level of prices.

We may find many who would be unwilling even to agree that "velocity of circulation" is a constant relative to changes in the quantity of media. For example, assume an inflation of the currency similar to that which occurred in the European countries during the world war. Is it not likely that in such a situation the "velocity of circulation" will increase with the expansion in the quantity of media, because of the declining purchasing power of the monetary unit? Will people not hasten to spend their money incomes more quickly than before, in fear of further depreciation? Or assume that business is in a period of prosperity. At such a time is it not likely that production and exchange will be speeded up as a result of an expansion in the quantity of media and rising prices? Are not business men encouraged to spend their funds more quickly than before in their quest for pecuniary gain? In both of these examples it is possible and probable that an increase in quantity of media will produce higher prices and that the higher prices will stimulate a more rapid turnover.

But Professor Fisher has prepared his theory to take account of such objections. He carefully distinguishes the difference between a "transition period" and a "normal period." He specifies that

"a change in the quantity of money, or in any other factor, or in all" constitutes a "transition."⁵ "As to periods of transition . . . an increase in *M* produces effects not only on the *p*'s, but on all the magnitudes in the equation of exchange." " . . . it . . . (quickens) . . . *V* and *V'* temporarily." " . . . the strictly proportional effect on prices of an increase in *M* is only the *normal* or *ultimate* effect after transition periods are over. The proposition that prices vary with money holds true only in comparing two imaginary periods for each of which prices are stationary or are moving alike upward or downward and at the same rate."⁶

5. The Purchasing Power of Money, p. 55.

6. Ibid., p. 159.

Thus inflation during the world war and expansion of media in boom periods would be classified, according to his theory, as transition periods.

His quantity theory is intended, then, to account only for the depth or height of the general level of prices and to explain few of the changes that go on between these two imaginary levels. Since he perceives, however, that "periods of transition are the rule and those of equilibrium the exception,"⁷ does he not deny that his theory is practically significant? Or does he intend to say that "velocity of circulation" is hardly ever a constant but that it is nearly always a variable?

It may seem difficult to reconcile Professor Fisher's statements concerning V with one another, since he holds under some conditions (normal periods) that V is not affected by changes in M , and under other conditions (transition periods) that V is affected by changes in M . Altho reconciliation may be difficult, nevertheless it is easy to understand how Professor Fisher was led to make such statements. He who attempts to defend a rigid formulation of the quantity theory and who admits that changes in turnover of media may produce fluctuations in price levels, may find himself caught between the horns of a dilemma. To defend the quantity theory, under such conditions, may require one to show, among other things, that turnover of media is a constant. But any argument of this sort is inconsistent with the facts. If it is admitted, however, that "velocity of circulation" is a variable, then one breaks faith with the quantity theory: a proposition which states that changes in quantity of media produce direct and proportional changes in the general level of prices. Any person who undertakes to defend such a proposition may find himself forced to shift much ground between these two extremes. None the less, Professor Fisher might easily have avoided this pitfall if he had denied for an entirely different reason that changes in turnover of media involve fluctuations in the general level of prices. Instead of concentrating attention upon absolute variations in turnover of

7. *The Purchasing Power of Money*, p. 71.

media, he might have attacked the problem from the standpoint of variations in turnover of media relative to variations in turnover of commodities and services. But Professor Fisher did not avail himself of this exit.

A vigorous denial is here made, contrary not only to the doctrines of Professor Fisher but also of Messrs. Keynes and Hawtrey, that changes in turnover of media account in any degree for fluctuations in the general level of prices, on the ground that changes in turnover of media are neutralized by corresponding changes in the turnover of commodities and services.⁸ This proposition may be clarified by the use of numerical illustrations. Assume that in a period of one month business men turn \$100,000 over to consumers in the production of 100,000 units of consumer commodities;⁹ and that consumers spend their entire money incomes in the period

8. Changes in turnover of commodities may arise in two ways. First, the *same* quantity of commodities may be exchanged several times per unit of time. For example, a quantity of 100,000 units of commodities may be exchanged twice during a month. Secondly, an *equal* quantity (not the same quantity) of commodities may be exchanged several times during a month. For example, if production is speeded up so that 100,000 units of commodities are produced, exchanged, and consumed during the first half and another 100,000 units during the second half of the month, then an equal quantity of commodities is exchanged twice during a month. In both cases the quantity of commodities in existence at any time during the month is never in excess of 100,000 units. The number of times the same or an equal quantity of commodities is exchanged is two.

Changes in the turnover of services can occur only in the latter of the two ways outlined above, since the same service can be exchanged for media only once. A service is intangible and cannot be again transferred after it has once been performed. Equal quantities of services may be exchanged, however, several times during the period of one month.

9. Instead of using index numbers as a measure of quantities of goods, an abstraction of a different sort is employed. Quantities of goods are expressed on this and the following pages in terms of "units of goods." A "unit of goods" is purely an abstraction. It is also an assumption contrary to fact, since quantities of goods are ordinarily expressed in terms of unhomogeneous units. But for purposes of this analysis a measure of quantities of goods, when expressed in terms of units of goods, is found to be more convenient than when expressed in terms of index numbers. In the above case the quantity of goods is assumed to be 100,000 units.

in which they receive them. A statement of the equation under these assumptions is as follows:

$$\begin{array}{rcccl} M_c & V_c & = & P_c & T_c \\ \$50,000^1 & 2^2 & = & \$1.00 & 100,000 \end{array}$$

in which M_c represents the average quantity of media in consumers' possession per month; V_c , the velocity of consumers' money incomes; P_c , the consumer price level; and T_c , the physical volume of trade in consumer commodities.

Assume that in the following month business men turn \$100,000 over to consumers twice and that consumers continue to spend all of their money incomes in the current period. The turnover of media is now increased from two to four per month, since the average quantity of media in consumers' possession is \$50,000 and the expenditure of consumers per month is \$200,000.³ The physical volume of trade must expand, however, from 100,000 to 200,000 units of consumer commodities per month, since consumers must now give their services to business men twice in order to get \$100,000 paid to them twice in the period of one month. If consumers receive \$100,000 once during a month, they give their services to business men once; but, if they receive \$100,000 twice, they must give their services to business men twice in the same period. In further elaboration of this point, assume that consumers have already been paid \$100,000 once during a month.

1. The amount of consumers' money incomes per month, according to assumption, is \$100,000; but the average quantity of media in consumers' possession throughout the month is \$50,000. It is assumed that consumers spend all of their money incomes in the period in which they receive them. Thus at the beginning of the month consumers have \$100,000 and at the end they have nothing. The average for the month is assumed to be \$50,000.

2. V_c is computed by dividing the average quantity of media in consumers' possession per month into consumers' monthly expenditures. Thus \$100,000 (expenditures) ÷ \$50,000 (average consumers' balances) = 2.

3. The average quantity of media in consumers' possession is still \$50,000 throughout the month. Consumers spend \$100,000 every half month. Thus at the beginning of the month consumers have \$100,000; and by the middle, they have nothing. The average is assumed to be \$50,000. Consumers' average balances for the latter half of the month are computed by the same method as for the first half.

Before consumers can obtain them again in the period of one month, the dollars must first be returned to business men by consumers in the purchase of consumer commodities. Even then business men will not consent to turn the \$100,000 over to consumers a second time during one month unless consumers give their services to business men a second time. Thus changes in turnover of media must be accompanied by corresponding changes in turnover of commodities and services, and cannot therefore produce changes in the consumer price level.

In a similar fashion it could be shown that changes in the velocity, or turnover, of business incomes can have no effect upon the price level of the agents and factors of production. The equation of exchange of the services of the agents and factors of production may be stated in terms of the following algebraic symbols:

$$M_b \quad V_b \quad = \quad P_b \quad T_b$$

in which M_b represents the average quantity of media in the possession of business men per month; V_b , the velocity of business incomes; P_b , the price level of the agents and factors of production; and T_b , the physical volume of trade in the agents and factors of production. Since additional numerical illustrations, however, would be identical in principle to those already presented, it would seem an unnecessary duplication to burden the reader with a repetition of them.

Objection may be made to the analysis so far conducted on the ground that it presents an untrue picture of actual conditions. The analysis assumes that there are only two exchanges; that business men pay out funds to hire the services of the agents and factors of production and that consumers return their money incomes to business men in the purchase of consumer commodities and services. As a matter of fact there may be any number of exchanges before commodities ultimately reach the hands of consumers. In other words, there is room for expansion or contraction in the amount of activity of middlemen and speculators. Furthermore, media may be exchanged not only for commodities and

services but also for securities. What has just been said concerning the first two classifications of items, however, applies equally to the third. No matter how many times the turnover of media may take place, there must be a corresponding increase in the number of times that commodities, services, or securities exchange hands, *if* the quantities of media and of commodities, services, and securities that are exchanged remain constant, since the transfer of media is made against the transfer of commodities, services, or securities, each being made in consideration of the other. In view of the fact that the number of transfers does not affect the ratio of exchange of media for commodities, services or securities, changes in turnover of media cannot produce price level fluctuations of any sort. The interjection of this complicating factor, then, does not destroy the validity of conclusions anticipated earlier in our discussion.

If the theoretical contentions above set forth are valid, we should expect to find some degree of direct correlation between changes in turnover of media and changes in the physical volume of trade. We should not expect to find perfect correspondence, however, for the reason that the available indexes of the physical volume of trade are a measure not only of changes in turnover of commodities, services, and securities but also of changes in the quantities of these items which enter the channels of trade. Nothing stated herein, therefore, should be taken to imply that the physical volume of trade cannot move independently of changes in turnover of media; but merely that changes in turnover of media must be accompanied by corresponding changes in turnover of commodities, services, or securities. Be this as it may, Mr. Carl Snyder, who has computed a comprehensive index of the physical volume of trade, embracing such subdivisions as productive activity, primary (or wholesale) distribution, retail distribution, general business activity and financial activity,⁴ and an index of the turnover of bank deposits for

4. For a description of the construction of the index of the physical volume of trade see Carl Snyder, *Business Cycles and Business Measurements*, ch. v, pp. 70-133.

member banks of the Federal reserve system in 141 principal cities, after methods developed by Kemmerer, Fisher, Burgess and others,⁵ has nevertheless found a high degree of direct correlation existing between these two series during the period 1919-1924.⁶ He has also found that the same relationship holds for the period 1875-1918 inclusive.⁷ As a result of these statistical studies, Mr. Snyder has suggested that changes in V in the equation of exchange might be neutralized by corresponding changes in T and that "the ratio of $\frac{V}{T}$ " might be "replaced in the equation by a constant."⁸

It would appear that the conclusions attained previously in our discussion by deduction are now verified by induction: that changes in turnover of media are neutralized by corresponding changes in the physical volume of trade.

The results of Mr. Snyder's studies, altho they may appear at first view to support the contentions herein set forth, must nevertheless be used with great caution. In the first place, the "remarkable resemblance" of the velocity of net demand deposits of reporting member banks in 141 cities "to the variations in . . . [his] . . . composite index of the volume of

5. For a description of the construction of the index of velocity, or turnover, of bank deposits, see Carl Snyder, *Business Cycles and Business Measurements*, ch. vii, pp. 144-154.

6. "In the rates of turnover so obtained there was found to be in the five complete years no observable trend in the composite results, either for the eight cities or for the one hundred and forty-one cities, and the variations were therefore taken in percentages of the five-years average. It was then found that these two sets of percentages agreed very closely, and what was still more interesting, likewise bore a remarkable resemblance to the variations in our composite index of the volume of trade. The range or amplitude of the variations agreed very closely indeed. There were some notable divergencies in the time relations between velocity and the volume of trade, but in general the movements of the three sets of indexes were quite close." — Carl Snyder, *New Measures in the Equation of Exchange*, *American Economic Review*, December, 1924, p. 703.

7. Snyder, *Business Cycles and Business Measurements*, pp. 151-154.

8. Snyder, *New Measures in the Equation of Exchange*, *American Economic Review*, December, 1924, p. 706.

trade"⁹ may arise from the methods used in the construction of the indexes instead of from any real similarity between the movements of the variables which the indexes are designed to measure. Mr. Snyder, in order to correlate the two statistical series during the period 1875-1918 inclusive, had to compute by interpolation indexes both of turnover of bank deposits and of the physical volume of trade, since the statistical data, although available after 1919, was unavailable prior to that date. As a measure of the physical volume of trade, he used a deflated index of bank clearings. He justified himself for such procedure in the following statement:

"There is such a close relationship between our Volume of Trade Index and the index of bank debits outside New York that, if we likewise reduce bank clearings to a volumetric basis, it will be possible to consider it a very satisfactory extrapolation of our Index of the Volume of Trade."¹

He obtained an index of the turnover of bank deposits by dividing "total individual deposits in National Banks" into "total clearings for the (entire) country, with corrections for secular trend and seasonal variations."² In regard to the relationship between the interpolated index of the turnover of bank deposits and the interpolated index of the physical volume of trade, he states:

"... a very remarkable degree of congruence is found to exist, both with regard to the time movement, and the amplitude of the fluctuations. Bearing in mind ... the nature of the material used, it is remarkable indeed that so great a congruence is found to exist."³

The high degree of direct correlation between the two statistical series may be due in part, however, to the fact that both indexes are computed from a common base — bank clearings. For this reason, if for no other, the two indexes should be

9. Snyder, *New Measures in the Equation of Exchange*, *American Economic Review*, December, 1924, p. 703.

1. Snyder, *Business Cycles and Business Measurements*, p. 135.

2. *Ibid.*, p. 151.

3. Snyder, *Business Cycles and Business Measurements*, pp. 151-154.

nearly identical in movement in point of view of time and amplitude of fluctuation, since only one new variable is introduced, the deposits of national banks, in the construction of the index of turnover of bank deposits.

In the second place, too much confidence cannot be placed in Mr. Snyder's conclusions, since the direct correlation between the turnover of bank deposits and the physical volume of trade is much less pronounced after 1924 than for the five years previous. After 1924 the increase in the turnover of bank deposits was much greater than the expansion in the physical volume of trade measured by his index. Thus it would appear, notwithstanding our theoretical contentions to the contrary, that deposits turnover and trade turnover did not always closely correspond.

This divergence may be partially accounted for, as suggested previously, by the fact that his index of the physical volume of trade is a measure of quantity as well as of turnover of trade, but it seems probable that the speculative boom in the stock market was a relatively more important factor after 1924. It is a well known fact that the turnover of media in the stock market is much higher than in any other field of economic activity.⁴ The stock market boom would tend to produce a quicker turnover of bank deposits. The more rapid use of bank funds would be fully registered in the index of turnover of bank deposits, since the methods used in the construction of this index make no distinction among the various uses to which the funds may be put. The acceleration in the turnover of securities, however, might not be fully represented in his index of the physical volume of trade, since speculative activity on the New York Stock Exchange is arbitrarily given such a small weight, being only 2 per cent out of a total of

4. Prof. James Harvey Rogers estimates (in his *Stock Speculation and the Money Market*) that the turnover of funds used in the stock market is at least 227 a year. W. Randolph Burgess estimates that the rate of turnover of bank deposits in the United States as a whole is between 25 and 35 times a year. See his article "Velocity of Bank Deposits" in the *Journal of the American Statistical Association* for June, 1923, p. 740.

100 per cent,⁵ relative to the weights given to the other items included in its construction. For reasons such as this, the two indexes may fail to correspond. The correspondence between the two time series might continue to be close after 1924, as well as prior to that date, if the weight given to turnover of securities in the construction of the index of the physical volume of trade were increased.

If we may place any reliance upon available statistical information, we find support for the contention that changes in turnover of media are neutralized by corresponding changes in the turnover of commodities, services, and securities. On the basis of the theory advanced and the statistical evidence presented, the conclusion seems inevitable that the turnover concept of velocity is a barren explanation of price level fluctuations of any sort.

III. THE BALANCE CONCEPT OF VELOCITY

The men whose theories are under examination do not confine themselves exclusively to the turnover concept, but also introduce into their analyses a second concept which I call the balance concept of velocity. In fact, some of their definitions of velocity represent a confusion of thought between the two concepts. Professor Fisher's definition of velocity, and all others based upon it, are subject to this criticism, since changes in the "quotient" which Professor Fisher calls the velocity of circulation, "obtained by dividing the total money payments for goods in the course of a year by the average amount of money in circulation by which those payments are effected," may emanate from one or the other of two sources. First, the "quotient" may vary from changes in the number of times that the quantity of media in circulation is exchanged for goods and services; and second, from changes in the size of balances which consumers and business men are accustomed to hold unspent from one period of time to another. In the first instance, the "quotient" will rise if the turnover of media is accelerated, since the quantity of

5. Shares sold on the New York Stock Exchange are given a weight of two per cent. *Business Cycles and Business Measurements*, p. 80.

media in circulation will divide a larger number of times into a larger volume of expenditures; and for the opposite reason, the "quotient" will fall if the turnover of media is retarded. Likewise, in the second instance, the "quotient" will rise if consumers draw down their unspent balances, since the quantity of media in circulation will divide a larger number of times into a larger amount of expenditures; and for the opposite reason, the "quotient" will fall if consumers build up their unspent balances.

Altho Professor Fisher's analysis appears to waver back and forth from one concept to the other, nevertheless at times his exposition indicates that it is the balance concept which he has primarily in mind. This interpretation of his theory is justified in his treatment of hoarded money:

"Hoarded money is sometimes said to be withdrawn from circulation. But this is only another way of saying that hoarding tends to decrease the velocity of circulation."⁶

The hoarding of money represents an increase in unspent balances, a decrease in the amount of expenditures, and a decrease in velocity of circulation. Conversely, the spending of hoarded money decreases unspent balances, increases the amount of expenditures, and increases the velocity of circulation.

Through a different approach Mr. Keynes expounds a theory which is fundamentally the same as the concept of velocity expressed in terms of unspent balances of purchasing power. His theory involves changes in the relative amounts of money saved and money invested. He presents three possible cases.⁷ First, the amount of money saved is assumed to exceed the amount invested. In this event, unspent balances of purchasing power are increased, since the money saved is not transferred to any spender. Secondly, it is assumed that the amount of savings equals investment. In this case unspent balances are not affected, since the savings are transferred to, and spent by, those engaged in the production of

6. *The Purchasing Power of Money*, p. 80.

7. *A Treatise on Money*, vol. i, pp. 171-184.

investment (capital) goods. Third, the amount of savings is assumed to be less than the amount invested. In this event unspent balances are diminished (if bank deposits are not expanded), since additional funds for investment are obtained by drawing down past accumulations of savings instead of using solely those accumulated currently.

But Mr. Keynes denies that his analysis of the relative amounts of savings and investment has any connection with velocity of circulation of media. He argues that the effects of such changes make themselves felt through changes in the quantity of media in circulation. In his treatment of money, he states:

"The 'velocity' measures the average frequency with which a coin (or a bank note) changed hands, and thus indicated the 'efficiency' of the currency for the transaction of business. This was a definite and unambiguous idea. But it was necessary for its clarity that it should be applied only to the coins and notes which were being actually used *as money*, and not to hoards. For, otherwise, an increase (or decrease) in the amount of the hoards would appear as causing a decrease (or increase) in the supply, or *quantity*, of effective money. Thus it has been usual to limit the 'velocity of circulation,' so far as practicable, to the effective money or money in active circulation, and not to stultify the conception by watering down the velocity of the money in circulation by including money which was not in circulation at all, but was being used as a 'store of value' and therefore had *no* velocity; changes in the amount of hoards being allowed for by regarding these as involving changes in the supply or quantity of circulating money rather than as changes in its velocity."⁸

Thus Mr. Keynes' attitude toward this proposition is diametrically opposed to Professor Fisher's contention presented on the preceding page — that "hoarded money is . . . [not] . . . withdrawn from circulation" and ". . . that hoarding tends to decrease the velocity of circulation."

8. Keynes, J. M. *A Treatise on Money*, vol. ii, pp. 20-21.

Mr. Keynes makes the same distinction between his two major classifications of bank deposits, Savings-deposits and Cash-deposits,⁹ as he does between money hoards and circulating money. He maintains that changes in unspent balances in the form of Savings-deposits alter the quantity of media in circulation but in no way concern its velocity. He declares that, if unspent balances in the form of Savings-deposits are considered a part of the quantity of media in circulation, "this is tantamount to treating 'hoards' as cash for the purposes of computing the velocity . . . with the result that variations in the amount of this store appear in the misleading guise of variations in the velocity of circulation" when, as a matter of fact, only changes in the quantity of media in circulation are actually taking place.¹ He contends, however, that changes in unspent balances in the form of Cash-deposits have precisely the opposite effect. He avers that "the velocity of Income-deposits is a function of the community's habits" . . . among other things . . . "as to what proportion of their (consumers') incomes they (consumers) carry forward from one income date over to the next";² and implies that the velocity of Business-deposits is also a function of business practices and policies as to what proportion of money receipts business men carry forward from one period to another.³ Thus he excludes unspent balances in the form of Savings-deposits from, but includes unspent balances in the form of Cash-deposits in, the total quantity of media in circulation; and contends that unspent balances in the form of Savings-deposits do not, but that unspent balances in the form of Cash-deposits do, affect the velocity of circulation of media.

Little justification can be found for these distinctions between money hoards and circulating money and between Savings-deposits and Cash-deposits on the basis of availa-

9. Cash-deposits are subdivided into Income-deposits and Business-deposits.

1. Keynes, J. M. *A Treatise on Money*, vol. ii, pp. 21-22.

2. Keynes, J. M. *A Treatise on Money*, vol. ii, pp. 25-26.

3. *Ibid.*, pp. 30-35.

bility of funds for spending. Money saved represents money available for spending; so does money in the pockets of consumers and in the tills of business enterprises and deposits of consumers and business men at the banks. On this score savings are just as much a part of the quantity of media in circulation as are any other funds in the possession of consumers and business men. Of course savings may be held either by income recipients or by borrowers for a longer period of time than other available funds; but balances in the form of Cash-deposits may remain unspent for as long a period as balances in the form of Savings-deposits and sometimes even longer. Furthermore, the period of time that funds are held does not alter their availability. It seems reasonable, therefore, to include savings in the quantity of media in circulation as well as any other funds in the possession of consumers and business men.

The inconsistencies of treatment of Savings-deposits and Cash-deposits may be removed in one or the other of two ways. First, unspent balances in the form of Cash-deposits may be treated in the same fashion as unspent balances in the form of Savings-deposits: unspent balances of either sort may be considered "hoards" — money taken out of circulation. This solution is hardly desirable, since such treatment, carried to its logical conclusion, limits the quantity of media in circulation to the amount being spent at a particular moment. Secondly, unspent balances in the form of Savings-deposits may be treated the same as unspent balances in the form of Cash-deposits: unspent balances of either sort may be considered a part of the total quantity of media in circulation and changes in them may be said to work out their effects through changes in the velocity of circulation. Objections to this solution of the problem will become apparent in the following critical discussion of Mr. Hawtrey's theory.

The balance concept of velocity is the concept emphasized by Mr. Hawtrey.⁴ According to his analysis, variations in

4. Mr. Hawtrey's concept differs in one fundamental respect from my definition of the balance concept. He expresses changes in unspent balances of money or credit in absolute terms, changes in the quantity of unspent balances; while I express them in relative terms, changes in

expenditures of consumers and business men may arise from changes in their unspent balances of money or credit (or the "unspent margin"). Consumers' money incomes and business men's receipts, instead of being used for purposes of expenditure, may be used to swell their unspent balances of money or credit. The amount of their expenditures is thereby diminished; and the general level of prices will tend to fall. In opposite fashion, consumers and business men may draw down their unspent balances of money or credit and thereby increase the amount of their expenditures. In this event the general level of prices will tend to rise. Thus changes in unspent balances of money or credit of consumers and business men, if not offset by changes in other factors, will produce fluctuations in the general level of prices.

The concept of velocity stated in terms of unspent balances of money or credit involves Mr. Hawtrey in difficulties of which he appears to be entirely unaware. In order to test the validity of velocity concepts as explanations of changes in the general level of prices, it is necessary to isolate the effects of changes in velocity from those of other factors in the equation. Otherwise it is impossible to tell whether or not changes in velocity have any effect at all on the general level of prices.

It is not clear from Mr. Hawtrey's analysis, however, whether changes in consumers' and business men's expenditures arise from changes in velocity or from changes in the quantity of media in circulation. The "unspent margin," according to his definition, consists of the total quantity of media in circulation in the form of either money or credit: "The unspent margin includes . . . the total of bank credits . . . [and] . . . the total of money in circulation [outside the banks]."⁵

Changes in the "unspent margin," then, represent equal changes in the quantity of media in circulation. But changes unspent balances relative to changes in the size of money incomes received per unit of time. This difference of treatment serves as the basis for the principal criticism of Mr. Hawtrey's use of the balance concept.

5. *Currency and Credit*, 1927 edition, p. 34.

in velocity, when stated in terms of unspent balances of money or credit, also involve changes in the unspent margin.

"The difference between the consumers' income and the consumers' outlay will represent a change in the unspent margin. If a man spends less than he receives, his balance of credit or money will be increased by just that amount. The unspent margin consists of two portions, the traders' balances and the consumers' balances."⁶

Thus his theory indicates that changes in velocity work out their effects through changes in unspent balances of money or credit or the "unspent margin," a term synonymous with the quantity of media in circulation.

If it is assumed, for purposes of analysis of Mr. Hawtrey's theory, that the quantity of media in circulation is a constant, then it is difficult to understand from his discussion of the problem how velocity of circulation can affect in any degree the general level of prices. The total of unspent balances of consumers and business men cannot be affected if the quantity of media in circulation remains constant, since the unspent balances of some members of society cannot be expanded unless the unspent balances of others are correspondingly depleted. Therefore, since there can be no change in the sum total of unspent balances, there can be, in keeping with his analysis, no changes in velocity. Of course, the unspent balances of consumers as a group may be increased to the extent that the unspent balances of business men as a group are diminished (or vice versa). Altho consumers' unspent balances may be built up in the manner indicated, nevertheless it is impossible to differentiate clearly between the separate effects upon the general price level of changes in velocity and of changes in the quantity of media in consumers' possession. The question immediately arises: changes in which one of the two variables account for the resulting fluctuations in the general level of prices? Confusion of analysis seems inevitable, if velocity of circulation of media is stated in terms of unspent balances of money or credit,

6. *Ibid.*, pp. 46-47.

since unspent balances of money and credit constitute the total quantity of media in circulation.

The objection raised against Mr. Hawtrey's use of the balance concept arises mainly from the fact that he expresses changes in velocity in terms of absolute, instead of in terms of relative, changes in unspent balances. Absolute changes in unspent balances may develop either from changes in the quantity of media in circulation or from changes in the unspent proportion of money incomes. If changes in unspent balances, however, are expressed as percentages of change of total money incomes received per unit of time, then an exact measure is obtained of changes in the unspent proportion of money incomes. This method of computation removes, through changes in the denominator of the fraction expressing the relationship between the amount of unspent balances and the size of money incomes, changes in the amount of expenditures arising from changes in the quantity of media in circulation.

A second objection deals with the practicability of the concept as a tool for use in economic analysis. The balance concept fits awkwardly into the equation of exchange. For example, to determine the importance of changes in unspent balances upon expenditures and the general level of prices, it is necessary to divide unspent balances by total money incomes received per unit of time, to multiply the fraction so obtained by total money incomes, and finally to subtract the result from total money incomes. To indicate these arithmetical steps in terms of algebraic symbols makes the equation unnecessarily complicated. The expenditure ratio concept of velocity, discussed on the following pages, offers a simpler solution of the problem.

IV. THE EXPENDITURE RATIO

The sole difference between the expenditure ratio and the balance concept of velocity is that the former deals with changes in the *spent*, and the latter with changes in the *unspent*, proportion of money incomes. The two concepts look at the same problem from opposite points of view. A

choice must therefore be made between them upon the basis of feasibility.

The following numerical illustrations are intended to demonstrate the relative simplicity of the expenditure ratio concept. Assume that the total quantity of media in circulation is fixed at \$100,000; that business men during a period of one month turn \$100,000 over to consumers in the production of 100,000 units of consumer commodities; and that consumers spend all of their money incomes in the period in which they receive them. According to these assumptions, a statement of the equation is as follows:

$$\begin{array}{rclcl} S_c & R_c & = & P_c & T_c \\ \$100,000 & 1 & = & \$1.00 & 100,000 \end{array}$$

✓ in which S_c represents the size of consumers' money incomes; and R_c , consumers' expenditure ratio. In the succeeding month assume that business men pay out \$100,000 in the production of 100,000 units of consumer commodities, but that consumers, instead of spending \$100,000, spend only \$90,000 currently. R_c in the equation is now changed from 1 to 9/10ths; and P_c , from \$1.00 to \$.90. During the third month business men have only \$90,000 available to turn over to consumers in the production of consumer commodities, since consumers spent only \$90,000 in the second month. The general level of prices of the agents and factors of production must fall unless there is an increase in unemployment. Let us assume that the prices of the agents and factors of production decline, and that consumers not only spend the \$90,000 which they receive in the current period but also the \$10,000 held over from the second period. S_c in the equation is now changed from \$100,000 to \$90,000; R_c , from 9/10ths to 10/9ths; and P_c , from \$.90 to \$1.00. Thus changes in consumers' expenditure ratio, through their effect upon consumers' money outlay, produce fluctuations in the consumer price level.

Similar illustrations may be used to show the effect of changes in the business expenditure ratio upon the price level of the agents and factors of production. The equation of

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exchange of the services of the agents and factors of production may be stated in terms of the following algebraic symbols:

$$S_b \quad R_b \quad = \quad P_b \quad T_b$$

in which S_b represents the size of business incomes; R_b , the business expenditure ratio; P_b , the price level of the agents and factors of production; and T_b , the physical volume of trade in the services of the agents and factors of production. It would seem a needless repetition, however, to duplicate the numerical illustrations already presented.

Do changes in consumers' and the business expenditure ratio, which have been assumed, actually occur? A direct answer cannot be made to this question, because of the lack of an adequate statistical measure of expenditure ratios. On account of the newness of the concept, statistical material has not yet been gathered, nor indexes computed. When the concept is once clearly recognized and firmly established, methods may be devised to overcome the practical difficulties involved in the construction of indexes of both consumers' and business expenditure ratios. Then the theoretical considerations herein set forth may be strengthened, modified, or overthrown. Until such a time as indexes of expenditure ratios will be computed, however, reliance must be placed largely upon *a priori* reasoning. ✓

Changes in consumers' expenditure ratio arise from the fact that the desire of consumers for present consumption may vary relative to their desire for future consumption. If consumers prefer present to future consumption, they spend a larger proportion of their money incomes currently. Consumers' expenditure ratio is thereby increased. Conversely, if consumers prefer future to present consumption, they spend a smaller proportion of their money incomes currently. Consumers' expenditure ratio is thereby decreased.

It seems likely that changes in consumers' expenditure ratio will manifest cyclical fluctuations to a high degree. On the upward swing of the cycle we may expect that consumers' expenditure ratio will decrease; and, on the downward

swing, that it will increase. When business is prosperous, business men, stimulated by expectation of larger profits, expand disbursements to hire the services of the agents and factors of production, and thereby increase the size of consumers' money incomes. Altho consumers may spend an amount absolutely greater under such conditions, nevertheless they may spend a smaller proportion of their rising money incomes currently. The standard of living under the pressure of circumstances is something that becomes fixed like a habit. An increase in the size of consumers' money incomes, therefore, does not signify an equal increase in the amount spent, since the standard of living may rise more slowly than the size of consumers' money incomes. Furthermore, during the period of prosperity consumers may choose to spend a smaller proportion of their rising money incomes currently, because they wish to insure themselves through accumulation of savings against a possible future reversal of fortune. Thus for either of these reasons a smaller proportion of consumers' money incomes may be spent currently, or consumers' expenditure ratio may decline.

Once the downward swing of the cycle is underway, however, the size of consumers' money incomes will diminish, since business men in view of declining profits contract their operations. Consumers may now be forced, because of falling money incomes, to use up accumulated savings in an attempt to maintain the standard of living to which they have grown accustomed. Under these conditions a larger proportion of their money incomes may be spent currently, or the consumers' expenditure ratio may rise.

Likewise the business expenditure ratio will manifest fluctuations of a similar nature except that its movements may be in the opposite direction from those of consumers' expenditure ratio. During periods of prosperity business men, stimulated by expectation of larger profits, may hasten to draw down idle balances to hire the services of the agents and factors of production. Under such conditions the business expenditure ratio will rise: business men will be spending a larger proportion of their money incomes currently. During

periods of declining business activity, however, business men, discouraged by expectation of falling profits, may accumulate larger unspent balances, because they find that it is unprofitable to continue production at former levels. During periods of business recession and depression, then, we may expect a fall in the business expenditure ratio: business men may spend a smaller proportion of their money incomes currently.

It is not at all certain, however, that the business expenditure ratio will rise during prosperity and fall during depression. Corporations, like private individuals, may accumulate unspent balances in the form of surpluses during prosperity and use them to survive an anticipated period of depression. Large corporations sometimes pursue such a policy to stabilize dividend payments. The United States Steel Corporation is an outstanding example. Altho this practice may modify somewhat the effect of other financial policies of the corporation, nevertheless it seems reasonable to suppose that corporation managements will find it profitable to spend a larger proportion of money incomes during prosperity in the conduct of business and a smaller proportion during depression. In the absence of a satisfactory measure of the business expenditure ratio a decisive answer cannot be made to this question.

Objection may be made to the present analysis on the ground that saving does not entail a decrease in consumer spending. The savings will be loaned directly or through the mediation of banks or money lenders, so that there will be merely a transfer of funds from money lenders to borrowers. Even if the borrowers are not consumers but are business men, nevertheless the funds may ultimately reach consumers' hands, since business men may pay them out to hire the services of the agents and factors of production.

The proposition that the process of saving and investment of funds prevents any change in the amount of consumer spending holds only on two conditions: first, the transfer of funds from those who save to those who ultimately spend them in consumption must be instantaneous; and secondly, the people to whom the funds are transferred must spend all

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of them currently and not save a part of their money incomes. The process of saving and investment of funds, however, is not instantaneous. A considerable period of time may elapse before the funds are again made available for consumer spending. For instance, the lender must first accumulate a surplus. Then perhaps the funds will be paid over to a banking house or to other middlemen in the purchase of security issues before they pass into the possession of borrowers. In case the borrowers are business men, as is most likely, before the funds reach consumers' hands, business men must first pay them out to hire the services of the agents and factors of production. The very act of saving itself, through a decrease in consumers' expenditure ratio, reduces the amount of consumer spending more than would otherwise be the case. But it is unlikely that the consumers, to whom the savings are finally distributed, will spend all of their money incomes currently. During the upswing of the cycle, when the size of their money incomes is growing, they may likewise save a larger proportion. Thus the process of saving and investment of funds tends to slow up and diminish consumer spending.

Even tho changes in consumers' expenditure ratio do occur, still there exists the possibility that changes in this factor will be neutralized by changes in some other factor of the equation, so that the fluctuations in the consumer price level will not take place. Before we may conclude, therefore, that changes in consumers' expenditure ratio produce fluctuations in the consumer price level, it must be shown that changes in consumers' expenditure ratio are neutralized by no other factor in the equation.

It is possible, indeed, that changes in the size of consumers' money incomes will modify the effect of changes in consumers' expenditure ratio. On the upswing of the cycle the size of consumers' money incomes is usually growing so fast that the effect of a decline in consumers' expenditure ratio is offset to such an extent that the consumer price level generally tends to rise. In opposite fashion, on the downward swing of the cycle the size of consumers' money incomes is shrinking at so rapid a rate that the consumer price level

tends to fall, in spite of the fact that consumers' expenditure ratio is increasing. It is much less likely, however, that changes in the physical volume of trade in consumer commodities will neutralize, than it is that they will accentuate, the effect of changes in consumers' expenditure ratio. During revival and prosperity, industrial and trade expansion tend to produce lower prices. The declining expenditure ratio likewise contributes toward the same end. Conversely, during recession and depression, industrial and trade contraction tend to amplify the effect of an increasing expenditure ratio.

But in the case of the relationship between changes in the size of consumers' money incomes and changes in consumers' expenditure ratio there is no certainty that the neutralization will be equal or complete; while there is such certainty as regards changes in turnover of consumers' money incomes and changes in the turnover of consumer commodities. A decline in consumers' expenditure ratio does not necessitate a corresponding growth in the size of consumers' money incomes or vice versa. The changes of one factor may be greater or less than the changes of the other. Furthermore, it is possible that changes in consumers' expenditure ratio, in contrast to changes in turnover of consumers' money incomes, may not only produce, but also initiate, changes in the consumer price level. Consumers may be constantly revising their judgments as to what proportion of their money incomes to spend currently and what proportion to save for the future, even tho the size of their money incomes remains unchanged. Thus consumers' expenditure ratio may rise and fall without change in the size of consumers' money incomes. The latter possibility, however, is improbable for short periods, since the standard of living is a level of consumption fixed by habit and is subject only to gradual change over a relatively long period of time. The proportion of unvarying money incomes which consumers will spend currently and the proportion which they will save for the future are quite precisely determined for short periods of time. Therefore, altho it is possible that changes in consumers' expenditure ratio may be an initiating cause of fluctuations in the consumer

price level, it is probable that they are a modifying cause only.

It is less likely, again, that changes in the size of business incomes will neutralize, than it is that they will reënforce, the effect of changes in the business expenditure ratio. When industry and trade are on the upgrade during revival and prosperity, business men are stimulated, in expectation of larger profits, not only to borrow more funds from banks but also to draw down balances which they already possess, in order to hire the services of the agents and factors of production. Conversely, when industry and trade are on the down grade during recession and depression, business men are induced, in expectation of declining profits, to pay off bank loans and accumulate larger balances. Thus changes in the size of business incomes and in the business expenditure ratio may supplement, and not contradict, one another.

On the other hand, it is likely that changes in the physical volume of trade in the agents and factors of production will neutralize to a greater or lesser extent the combined effect of changes in the size of business incomes and in the business expenditure ratio. During the upswing of the cycle the physical volume of trade is growing, the unemployed agents and factors are being drawn back to work, at the same time that the size of business incomes and the business expenditure ratio are increasing. On the downward swing of the cycle the physical volume of trade is diminishing, the unemployed agents and factors are being discharged, at the same time that the size of business incomes and the business expenditure ratio are decreasing. Thus changes in the physical volume of trade modify the combined effect of changes in the size of business incomes and in the business expenditure ratio.

It may be stated in conclusion that the expenditure ratio concept of velocity is a valid explanation of fluctuations in the general level of prices, since it is probable that changes in either consumers' or the business expenditure ratio will not be exactly, altho they may be partially, offset by the other factors of the equation. Let it be repeated, however, that the above generalizations concerning the expenditure ratio

concept of velocity are tentative in view of their *a priori* character. The precise determination of the importance of both consumers' and the business expenditure ratio must wait until adequate statistical measures can be computed.

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THE SEPARATION OF OWNERSHIP AND CONTROL IN AMERICAN INDUSTRY¹

SUMMARY

Introduction. The concept "control."—Types of control; complete ownership, 72; majority control, 73; legal device, 74; minority control, 81; and management control, 83.—Separation of ownership and control among the 200 largest American corporations; basis of classification and extent of separation, 89.—Conclusion, 95.—Tables showing types of control, 98.

The ownership of industrial wealth and the control over that wealth are coming to lie less and less in the same hands. Through the mechanism of the corporation, control over industrial wealth can be and is being exercised with a modicum of ownership interest. Conceivably it can be exercised without any such interest. Ownership of wealth without appreciable control, and control of wealth without appreciable ownership, appear to be the logical outcome of present corporate development.

This separation of function suggests that "control" as something apart from ownership on the one hand and from management on the other should be introduced as a major economic concept. It is the purpose of this article, first, to examine the nature of "control," giving some measure of definition to the concept, second, to examine various types of control situations and the extent to which they involve a separation of ownership and control, and third, to present evidence tending to indicating the degree to which ownership and control have become separated in American corporations.

THE CONCEPT "CONTROL"

In discussing problems of enterprise, the economist has distinguished between two groups of individuals, owners and

1. The following study is one outgrowth of a project in combined legal and economic research conducted at the Columbia Law School under the auspices of the Columbia Social Science Research Council. The basic material from which Tables II and III are derived will be

managers, and it is necessary to examine the functions of these groups before seeking to develop the concept "control." The owners appear to have been distinguished primarily by the fact that they were *in a position* both to manage an enterprise or delegate its management and to receive any profits or benefits which might accrue. The managers on the other hand *operated* an enterprise, presumably in the interests of the owners. The difference between ownership and management is thus in part one between position and action. An owner who remained completely quiescent towards his enterprise would nevertheless remain an owner. His title is not applied because he acts or is expected to act. Indeed, when the owner acts, as for instance in hiring a manager or giving him directions, to that extent the owner manages his own enterprise. His acts with respect to it are acts of management. On the other hand, it is difficult to think of applying the title "manager" to an individual who had been entirely quiescent. It is because he acts or is expected to act that he receives his name.

When the customary idea of ownership is further examined it becomes apparent that it involves both a set of legal and factual *interests*² in the enterprise and a set of legal and factual *powers* over the enterprise. These two functions, interest and power, have not customarily been distinguished in discussions of ownership since they have usually been exercised by the same persons. There is no necessity, however, that they should lie in the same hands. A legal minor may have almost no power over a business of which he is the owner and in which he has very important interests. At the same time published in a forthcoming book on "Private Property and the Corporate System," by A. A. Berle, Jr. and Gardiner C. Means.

2. "Interests" is here used to refer to the relationships between an individual and an enterprise (and other individuals and associations) which are the basis for expectations that individuals having powers over the enterprise will act (or refrain from acting) to the benefit of the person in interest. Thus a stockholder, quite apart from any powers he may have, is in a position of interest with respect to the corporation when he is in such relation to it that he has expectations that it will be operated in part for his benefits or that he will derive benefit. It is immaterial whether his position is legally enforceable.

his guardian may have very great powers over the business with relatively few interests therein. It is customary to say that the minor owns the enterprise and that the guardian controls it. The essential characteristic of ownership appears, therefore, to consist of having interests in an enterprise while the essential characteristic of control consists of having powers over the enterprise. The two functions, even when combined in the hands of a single individual, are as essentially separate functions as either is from management.

With the development of the modern corporation, interests and powers have come to be attached to separate groups and the term "ownership" has in practice been applied to the group with interests in the enterprise whether or not that group has powers over it. The group with powers may be termed "the control." Instead, therefore, of discussing in the traditional manner, the two functions, ownership and management, we should use three distinct concepts: ownership or interest, control or power, and management or action.

In using the concept control it should commonly be applied only to the major powers over an enterprise just as ownership and management are usually applied only to the major interests and acts. In the case of management, except as a special definition is employed for a special purpose, there is no sharp dividing line between individuals who are classed as part of the management and those who act with respect to an enterprise but are not so classed. For some purposes we can speak of the board of directors as the management, for other purposes we may include the major executives. On some occasions it may be desirable to include superintendents and foremen. Even the day laborer may manage machines. All of these can be regarded as in some degree managers; in each case the term management is applied to those who are expected to accomplish the more responsible acts with respect to the enterprise. Always there are some who accomplish unimportant acts who are not included.

In the same way, there is no sharp line, except in law, between those with interests in an enterprise who are regarded

as owners and those who are not.³ Ordinarily the stockholders are regarded as owners of a corporation. When speaking of the ownership of all corporations, however, bondholders are very apt to be included. The economist does not hesitate, for certain purposes, to add also an employee with wages due him as temporarily a part owner. In each instance, the owners are only those with the major interests and many individuals with minor interests are not included.

Similarly, in the case of control, there can be no sharp dividing line to indicate those who have sufficient powers over an enterprise to be referred to as being in a position of control. Often the owners are thought of as having control. In fact, however, each worker from president to office boy exercises a degree of control over an enterprise, at least to the extent that he has or is given power in respect to some phase of its activity. The government has power to tax and police power. Likewise customers or suppliers of raw material, particularly bankers supplying capital, may have a considerable measure of control. It is therefore necessary, as in the case of ownership and management, to restrict the term control to apply to the major powers. It is then possible to refer to those holding such powers as "the control," keeping in mind that many other individuals may have a measure of power over the enterprise and that the dividing line between is never sharp except as it is made so by special definition for special purposes.

CORPORATE CONTROL

In examining the separation of ownership and control in the modern corporation, it is apparent that we are dealing with a separation of the major powers over an enterprise from the major interests therein. One group of individuals,

3. For legal purposes a sharp line is drawn. An owner is one who holds legal title. Where corporations are concerned, this tends to run counter to ordinary usage. Title to corporate property rests in a corporation and not in its stockholders. In common language Mr. Ford could point to the numerous factories which he "owned." In legal terminology he would have to say that he did not own any factories. They all belonged to a corporation in which he and his family owned all the shares.

the owners, hold the major interests while a second group, no longer identical with the first, holds the major powers. Since the latter are usually made effective through the corporate management and in particular through the board of directors, "control" may be said for practical purposes to lie in the hands of the individual or group who have the actual power to select the board of directors (or its majority), either by mobilizing the legal right to choose them — "controlling" a majority of the votes directly or through some legal device — or by exerting pressure which influences their choice. Occasionally the major elements of control are made effective not through the selection of directors, but through dictation to the management, as where a bank determines the policy of a corporation seriously indebted to it. In most cases, however, if one can determine who does actually have the power to select the directors, one has located the group of individuals who for practical purposes may be regarded as "the control."

When control is thus defined a wide variety of kinds and conditions of control situations can be found — forms derived wholly or in part from ownership, forms which depend on legal devices, and forms which are extra-legal in character.

Five major types can be distinguished, tho no sharp dividing line separates type from type. These include (1) control through almost complete ownership, (2) majority control, (3) control through a legal device without majority ownership, (4) minority control, and (5) management control. Of these, the first three are forms of control resting on a legal base and revolve about the right to vote a majority of the voting stock. The last two, minority and management control, are extra legal, resting on a factual rather than a legal base.

1. CONTROL THROUGH ALMOST COMPLETE OWNERSHIP

The first of these is found in what may be properly called the private corporation in which a single individual or small group of associates own all or practically all the outstanding stock. They are presumably in a position of con-

trol, not only having the legal powers of ownership, but also being in a position to make use of them and, in particular, being in a position to elect and dominate the management. Of this type is the Ford Motor Company, completely owned by Henry Ford and his family, with Mr. Ford able to exercise the full functions of ownership, control and ultimate management. In such an enterprise, ownership and control are combined in the same hands.

2. MAJORITY CONTROL

Majority control, the first step in the separation of ownership and control, involves ownership of a majority of the outstanding stock.⁴ In the case of a simple corporate structure, the ownership of a majority of the stock by a single individual or small group gives to this group virtually all the legal powers of control which would be held by a sole owner of the enterprise and in particular the power to select the board of directors.⁵ Certain powers of control such as the power to amend the charter or to discontinue the enterprise may require more than a simple majority vote and to that extent the majority exercises less control than a sole owner. Furthermore the powers of control may be to a slight extent curbed by the existence of a compact minority which is ready to question the policy or acts of the majority both directly, at stockholders' meetings, and in the courts. Where all stock except that held by the majority interest is widely scattered, on the other hand, majority ownership (in the absence of a "legal device") means undiminished actual control. At the same time, the concentrating of control in the hands of a majority means that the minority have lost most of the powers of control over the enterprise of which they are part owners. For them, at least, the separation of ownership and control is well nigh complete, tho for the majority the two functions are combined.

4. Where a corporation has subsidiaries, majority control as here used would involve the ownership of stocks representing more than half of the equity interest in the consolidated enterprise.

5. Where a minority of the stockholders have the power to select a

Among the largest corporations, however, the separation of ownership and control has passed far beyond the separation represented in majority control. In a truly large corporation, the investment necessary for majority ownership is so considerable as to make such control extremely expensive. Among such companies majority control is conspicuous more by its absence than by its presence.⁶ More often control is maintained with a relatively small proportion of ownership.

3. CONTROL THROUGH LEGAL DEVICE

In the effort to maintain control of a corporation without ownership of a majority of its stock, various legal devices have been developed. Of these, the most important among the very large companies is the device of "pyramiding." This involves the owning of a majority of the stock of one corporation which in turn holds a majority of the stock of another — a process which can be repeated a number of times. An interest equal to slightly more than a quarter or an eighth or a sixteenth or an even smaller proportion of the ultimate property to be controlled is by this method legally entrenched. By issuing bonds and non-voting preferred stock of the intermediate companies the process can be accelerated. By the introduction of two or three intermediate companies, each of which is legally controlled through ownership of a majority of its stock by the company higher in the series, complete legal control of a large operating company can be maintained by an ownership interest equal to a fraction of one per cent of the property controlled. The owner of a majority of the stock of the company at the apex of a pyramid can have almost as complete control of the entire property as a sole owner, even tho his ownership interest is a small fraction of the whole.

In recent years the VanSweringen brothers have been notably successful in using the device to create and retain control of a great railroad system. Through an intricate series of pyraminority of the board, their loss of control over the enterprise may be less, though it must in any case be very considerable.

6. See Table III, p. 99.

mided holding companies they have brought together vast railroad properties extending nearly from coast to coast. As the system was built up, the structure of holding companies was simplified until at the beginning of 1930 it was not unduly complex. The major ramifications are shown in Chart I. By this pyramid an investment of less than twenty million dollars was able to control eight Class I railroads having combined assets of over two billion dollars. Less than one per cent of the total investment or hardly more than two per cent of the investment represented by stock was sufficient to control this great system.⁷

The rapidity with which the pyramided structure allows the investment to be reduced while control is maintained is shown by the figures on the chart. The Van Sweringen investment represented 51 per cent of the capital in the General Securities Corporation, eight per cent of the capital of the Alleghany Corporation, four per cent of the Chesapeake Corporation, less than one per cent of the great operating Company, the Chesapeake and Ohio Railway, and but a quarter of one per cent of the latter's operating subsidiary, the Hocking Valley Railway Co. In the last two companies named over 99 per cent of the investment represented ownership without control. For the system as a whole, less than two per cent of the ownership represented combined ownership and control. For the most part the two functions were exercised by separate groups.

This same pyramiding has been extensively employed in building up most of the great public utility systems. By its use legal control can be effectively divorced from legal ownership and factual power can be exercised over great aggregates of wealth with almost no ownership interest therein.

A second legal device for retaining control with a small investment is the use of non-voting stock. This is a comparatively new device, but one which has received so much

7. At certain points in the pyramid, notably in the case of the Alleghany Corporation, control was maintained by ownership of a large minority interest rather than by means of majority control. This is a form of control which will be discussed below.

comment as to be thoroughly familiar. It consists in so arranging the rights attached to different classes of stock that most of the stock is disfranchised,⁸ and only a very small class, or a class representing a very small investment, is permitted to vote. Ownership of just over half of this privileged class is sufficient to give legal control and virtually all the powers of majority ownership. For many years it has been possible in certain states to issue non-voting preferred stock. This has frequently been done but without causing serious objections, presumably in part because the issue of common stock is as a rule very much larger than the corresponding issue of preferred stock and in part because the self interest of the common stockholders has been regarded as ample protection for the interests of the preferred holders.

Only recently as a result of statutory changes has it been possible to issue common stock which has no voting rights. Perhaps the most notable example is the non-voting common of the Dodge Brothers, Inc., issued in 1925. In this case neither the preferred nor four-fifths of the common stock was entitled to vote in the election of directors. By owning 250,001 shares of voting common, representing an investment of less than two and one-quarter million dollars, Dillon Read and Company was able to exercise legal control over this hundred and thirty million dollar concern.⁹

In contrast to non-voting preferred the use of non-voting common stock has met with considerable disfavor.¹ Both the New York Stock Exchange and the New York Curb have refused to list new issues of non-voting common stock, and for practical purposes this would seem to have eliminated the extension in the use of this device on any large scale in the immediate future.

A similar device is, however, being employed which may perhaps be considered a variant of the non-voting stock.

8. At least so far as the voting for directors is concerned.

9. Moody's Industrial Manual, 1928, p. 49. The common stock was carried on the books of the company at less than \$9 per share, including capital surplus. Dodge Bros. stock has since been acquired by Chrysler Corp.

1. See, for instance, W. Z. Ripley, *Main Street and Wall Street*.

This consists of issuing to the controlling group a very large number of shares of a class of stock having excessive voting power, *i.e.*, voting power out of proportion to the capital invested. A striking use has been made of this device in the case of the Cities Service Company. In 1929 this corporation sold to H. L. Doherty & Co. one million shares of a \$1 par preferred stock. Each share of this stock was entitled to one vote in the election of directors. Yet each share of common stock outstanding was entitled to only 1/20 vote per share. Twenty-seven per cent of the votes could be cast by the million shares of preferred. Since the other classes of stock were widely distributed (81,470 holders of preferred and 377,988 holders of common stock on June 15, 1930) the excessive voting power given to this cheap stock practically nullified the voting privilege of the regular stockholders. By the use of this device a million dollar par value of stock held virtual control over assets of approximately a billion dollars.²

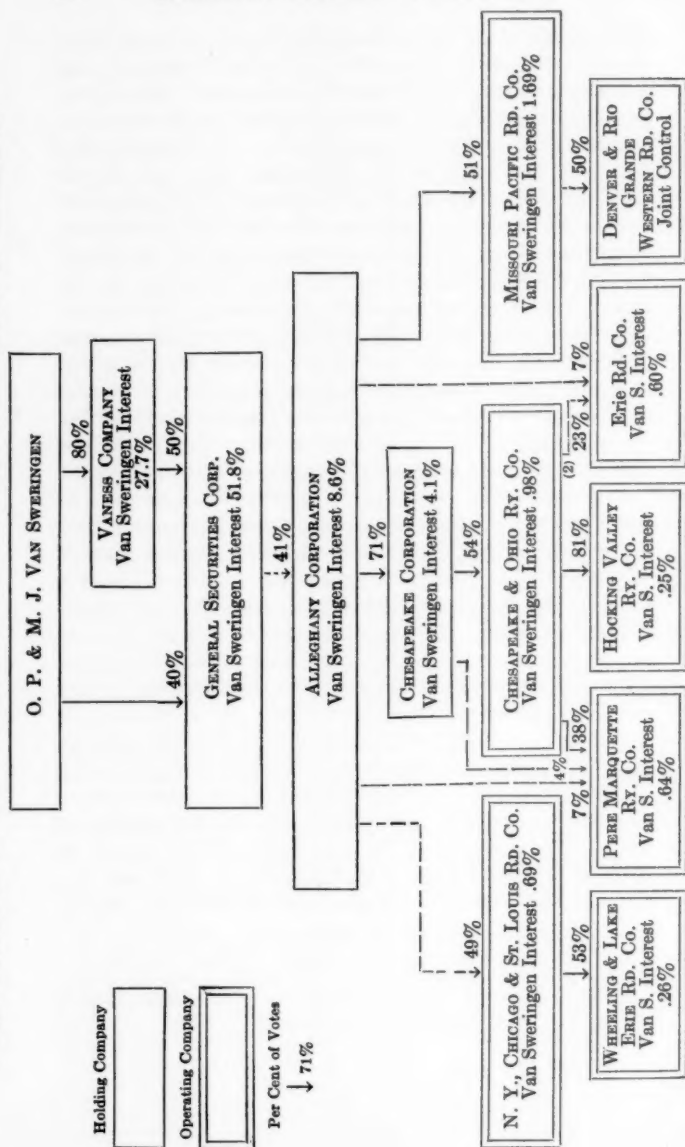
The same device was formerly employed by the group in control of the Standard Gas and Electric Company. Each share of \$1 par preferred stock of that company had as much voting power as a \$50 par common share. In 1929, the million shares of the cheap stock were able to cast 41 per cent of the votes outstanding. Here again a million dollar par value of stock, presumably representing a million dollars of investment, was able to exercise practical control over one billion dollars of assets.³

In addition to these ways of securing legal control through direct or indirect ownership of the voting majority, a further device must be considered which does not involve even ownership of a voting majority. This is the familiar practice of organizing a voting trust. It involves the creation of a group of trustees, often a part of the management, with the complete power to vote all stock placed in trust with it. When a

2. Moody's Manual of Public Utilities, 1930, p. 1998.

3. Standard Corporation Records (hereafter referred to as S. C. R.), April 29, 1929. In the latter part of 1929 this method of control was replaced by one depending on an extremely complex holding company set up. New York Times, March 24, 1930, and Moody's Public Utility Manual, 1930.

MAJOR ELEMENTS IN THE CONTROL OF THE VAN SWERINGEN SYSTEM OF RAILROADS (1)



(1) As of April 30, 1930. Based on Regulation of Stock Ownership in Railroads, chart opposite page 878.
 (2) Held via Virginia Transportation Company which was 100% owned by Chesapeake & Ohio Railway Company.

majority of the stock is held in trust, as is usually the case, the trustees have almost complete control over the affairs of the corporation, yet without any necessary ownership on their part. The stockholders, meantime, receive in place of their stock, trust certificates entitling them to share in such disbursements as the directors may choose to distribute. In the recent organization of the ninety million dollar Pennroad Corporation, the organizing group — the Pennsylvania Railroad management — used this device to guarantee complete control. The stock of the newly formed corporation was placed in a voting trust and the stockholders of the railroad were offered the privilege of furnishing capital by purchase of voting trust certificates.⁴ The purchasers of these certificates acquired the position of owners without the power even as a group to control their own enterprise.

The voting trust, more completely than any device we have hitherto considered, separates control from all ownership interest. Originally bitterly opposed by the law and held illegal by the courts on the ground that the vote could not be separated from the stock, it came to be permitted by statutory provision in most states. Such statutes, however, commonly limited the period during which the trust agreement could run to some term of years, in New York State to a maximum of ten years. But even where the duration was limited, the voting trustees might entrench themselves beyond the reach of the stockholders for a longer period by arranging for renewal of the trust for additional terms at their own discretion. The Interborough Rapid Transit Company is perhaps the most striking case. The voting trust agreement provided for a duration of five years but was renewable for five successive periods of five years each without any further action on the part of the holders of voting trust certificates.⁵ Legal control could thus be prolonged for a period of thirty years.

Control through a voting trust differs from the other forms of legal control, and from the forms of factual control which we shall examine, in that it is fixed, defined, and inalienable,

4. S. C. R., July 22, 1929, p. 6730.

5. S. C. R., Special Reports Section, May 9, 1929.

with certain definite and well recognized responsibilities attached. Under the other arrangements so far discussed control may be bought or sold or may pass by inheritance in case of death; its location may not be generally known (in fact, frequently it is not) and its holder has never stood up in public and assumed the definite obligations of its possession. Control through a voting trust is open, substantially inalienable, and therefore responsible. Presumably it is this open acceptance of responsibility which has reduced the criticism against the voting trust and made it an effective device for maintaining control without ownership. Perhaps for the same reason it has not been extensively employed in the larger corporations, since those individuals desiring to control a company may not wish to assume the responsibilities and liabilities which a trust would impose upon them.

The methods of control so far discussed have all involved a legal status. In each case factual control has rested primarily upon the more or less permanent possession of the legal power to vote a majority of the voting stock. Yet such control has been held in connection with different proportions of ownership. At one end of the scale ownership and control have been wholly combined. At the other end of the scale ownership and control have been wholly separated. Any degree of combination or separation might be arranged, the control always based on a legal status.

In the typical large corporation, however, control does not rest upon legal status. In these companies control is more often factual, depending upon a strategic position secured through a measure of ownership, a share in management or an external circumstance important to the conduct of the enterprise. Such control is less clearly defined than the legal forms, is more precarious, and more subject to accident and change. It is, however, none the less actual. It may be maintained over a long period of years, and as a corporation becomes larger and its ownership more widespread, it tends towards a position of security comparable to that of legal control, a position from which it can be dislodged only by a virtual revolution.

As in the case of legal control, factual control apart from legal control may involve varying degrees of ownership, tho never more than 50 per cent of the voting stock.⁶ Factual control may rest to a very considerable extent on the ownership of a large minority stock interest, or, when stock ownership is widely distributed, it may lie in the hands of the management. No sharp dividing line exists between these two situations, but so far as they can be distinguished, they may properly be referred to as minority control and management control.

4. MINORITY CONTROL

Minority control may be said to exist when an individual or small group holds a sufficient minority stock interest to be in a position to dominate a corporation *through their stock interest*. Such a group is often said to have "working control" of the company. In general their control rests upon their ability to attract from scattered owners proxies sufficient when combined with their substantial minority interest to control a majority of the votes at the annual elections. Conversely this means that no other stock holding is sufficiently large to act as a nucleus around which to gather a majority of the votes. Where a corporation is comparatively small and the number of stockholders is not great, minority control appears to be comparatively difficult to maintain. A rival group may be able to purchase a majority of the stock, or perhaps a minority large enough to attract the additional votes necessary to obtain control in a proxy fight. The larger the company and the wider the distribution of its stock, the more difficult it appears to be to dislodge a controlling minority. As a financial operation it would be practically impossible for an outside interest to purchase a majority of the stock of the General Motors Corporation; even a Rockefeller would think twice before endeavoring to purchase a majority ownership of the Standard Oil Company of Indiana. Likewise the cost of mobilizing the votes of tens or hundreds of thousands of stockholders by circularizing them and perhaps

6. Over 50 per cent of the voting stock would presumably involve legal control.

conducting a publicity campaign, must be such as to prevent any but the most wealthy from seeking this method of seizing control from an existing minority. This is especially the case because the existing control can charge to the corporation the costs of its fight to maintain its position.

There is, however, a serious limitation on minority control in the possibility that the management may be antagonistic. So long as the affairs of the corporation run smoothly, minority control may be quietly maintained over a period of years. In time of crisis, however, or where a conflict of interest between the control and the management arises, the issue may be drawn and a proxy fight to determine control may demonstrate how far dependent upon its appointed management the controlling group has become.

In recent years the most striking illustration of this fight for control was occasioned by the open warfare between Mr. John D. Rockefeller, Jr., and the management of the Standard Oil Company of Indiana. Mr. Rockefeller actually held 14.5 per cent of the voting stock.⁷ He had been in substantial control of the company for years. Colonel Stewart, the chairman of the board of directors and undeniably the driving force behind much of that company's activity, displeased Mr. Rockefeller in connection with certain transactions which were the subject of discussion during the administration of President Harding. He asked Colonel Stewart to resign; Stewart refused and did not grant to Mr. Rockefeller the use of the proxy machinery at the following annual election of directors. Thereupon Mr. Rockefeller waged a most dramatic proxy battle against him. He circularized the stockholders at considerable expense, asking for proxies. He engaged the most eminent legal talent to guard against any "technical mistakes." He brought to bear the tremendous influence of his standing in the community. The *Wall Street Journal* pointed out at the time that the fight marked the first time the Rockefeller domination in a large Standard Oil unit "had been really in question."⁸ In opposi-

7. Either directly through members of his family or through charitable institutions. *Wall Street Journal*, Jan. 15, 1929.

8. *Wall Street Journal*, January 11, 1929.

tion, Colonel Stewart obtained the full support of the existing board of directors and sought the support of the 16,000 employees who were stockholders. At this most opportune moment the company declared a 50 per cent stock dividend.⁹ The issue was for long in grave doubt. Four days previous to the election both sides are reported to have claimed the support of a majority, the one of votes and the other of stockholders. In the final election of directors, Mr. Rockefeller won, 59 per cent of the votes outstanding or 65 per cent of the votes cast being in favor of his candidates. Control may be said to have remained in his hands.¹ Colonel Stewart's connection with the company was brought to a close.²

This case has been described in detail because it probably marks the dividing line between minority control and management control. If Mr. Stewart had won the fight we could say that management without appreciable ownership was in the saddle. As it is, we may say that Mr. Rockefeller is in control, to a considerable degree, through his ownership of a minority interest of 14.5 per cent and in part through less tangible factors. Could other men with less prestige and financial power have retained control with but a 15 per cent ownership? Could Mr. Rockefeller have retained control if his ownership had been appreciably less? Here would seem to be control based on the minimum of ownership which would allow it to be held separate from the titular management.

5. MANAGEMENT CONTROL

The fifth type of control is that in which ownership is so widely distributed that no individual or small group has even

9. Even though a stock dividend may have little effect on the value of the stockholdings of the individual, the psychological effect may be great.

1. 5,519,210 shares voted against Colonel Stewart and 2,954,986 shares in favor. 9,284,688 shares were outstanding. *New York Times*, March 8, 1929. The figures reported by other papers were substantially the same.

2. This dramatic fight was fully reported by the daily press between January 10 and March 8, 1929. See particularly: the *Wall Street Journal*, January 10, January 11 and March 8; the *New York Times*, January 12, January 30, March 3 and March 8.

a minority interest large enough to dominate the affairs of the company. When the largest single interest amounts to but a fraction of one per cent, as in the case of several of the largest American corporations, no stockholder is in the position through his holdings alone to place important pressure upon the management or to use his holdings as a considerable nucleus for the accumulation of the majority of votes necessary to control.

This stock dispersion appears to have progressed furthest in the Pennsylvania Railroad Company. The House Committee on Interstate and Foreign Commerce recently made an exhaustive study of the ownership of the Pennsylvania Railroad as well as that of other systems.³ They not only examined the lists of recorded stockholders, but went back of these lists. Wherever significant amounts of stock were recorded in the names of brokers or nominees, the names of the ultimate owners were discovered and the stock credited to them. Because of the Committee's access to the brokerage house records and the care with which their work was done, we can accept their report on ownership as subject to no serious error. A summary of their finding with regard to the Pennsylvania Railroad is given in Table I. According to their report, on December 31, 1929, the largest stockholder of the Pennsylvania held but 34 hundredths of one per cent of the total stock outstanding. The next largest holder owned but two-tenths of one per cent, while the combined holdings of the twenty largest owners amounted to only 2.7 per cent of the total stock. Only 236 stockholders held over 500 shares (.004 per cent) and their combined holdings amounted to less than five per cent of the total. Clearly no individual or small group was in a position to dominate the company *through stock ownership*, a fact still further emphasized by the heterogeneous character of the list of largest holders.

3. Regulation of Stock Ownership in Railroads, House Report No. 2789, 71st Congress, 3d Session (February, 1931), Washington, D. C.

TABLE I

20 LARGEST STOCKHOLDERS OF THE PENNSYLVANIA RAILROAD CO.
(as of December 31, 1929*)

Penn. Rd. Employees Provident & Loan Assoc., Philadelphia, Pa.....	39,350	.34%
William M. Potts, Wyebrooke, Pa.....	23,738	.20%
J. Marshall Lockhart, Pittsburgh, Pa.....	22,500	.19%
Fahnestock & Co., held for Fahnestock family, New York.....	16,848	.15%
Estate of Henry H. Houston, Philadelphia, Pa...	16,000	.14%
The Home Insurance Co., New York.....	16,000	.14%
General Education Board, New York.....	15,882	.14%
Haygart Corp. (Adams Express) Investment Co., New York.....	15,400	.13%
English Assoc. of American Bond & Shareholders, England.....	15,264	.13%
Celia Sibley Wilson, Franklin, Pa.....	15,000	.13%
Estate and family of Marcus Loew, New York..	13,600	.12%
Travelers Insurance Co., Hartford, Conn.....	13,500	.12%
Estate of John J. Emery, Philadelphia, Pa.....	13,000	.12%
James Capel & Co., Brokerage House, England..	12,686	.11%
Sterling Securities Corp., Jersey City, N. J.....	12,000	.11%
Harris, Upham & Co., New York (partners' account).....	11,250	.10%
Kuhn, Loeb & Co., New York (for own account)	10,000	.09%
Girard Trust Co., Philadelphia (for own account)	10,000	.09%
1 Unidentified individual.....	10,000	.09%
Mrs. E. S. Woodward, LeRoy, New York.....	8,500	.07%
	310,518	2.70%

* Regulation of Stock Ownership in Railroads (pp. 142-143). Total shares outstanding Dec. 31, 1929 — 11,495,128.

It is further striking that no directors or officers were included among the largest twenty holders. Not a single director or officer held as much as one-tenth of one per cent of the total stock. The combined holdings of all the directors could not have amounted to more than seven-tenths of one per cent and were presumably very much less.⁴ Certainly in terms of relative interest the holdings by the directors were negligible.

4. Not a single director is included among the individuals whose holdings are given in the Congressional Report, but the 19 largest

A similar situation appears to exist in the ownership of the American Telephone and Telegraph Company and in the United States Steel Corporation, respectively the largest public utility and the largest industrial company in the country. In neither company does the largest stockholder own as much as one per cent of the outstanding stock, while the 20 largest Telephone holders owned 4.6 per cent and the 20 largest Steel 6.4 per cent. These figures differ from those for the Pennsylvania stockholders in that no adjustment has been made for stock held by brokers and by nominees. The brokerage accounts usually represent the holdings of a multitude of individuals. At the same time, the largest individual holders may have stock in brokerage accounts or in the names of nominees. If adjustment for these items were made, it might increase the proportion held by the few very largest holders, but would probably reduce considerably the combined holdings of the largest 20.⁵ It is clear, therefore, that in these companies, also, no small group of individuals have sufficient stockholdings to dominate *through stock ownership*.

In these companies the directors appear to have a somewhat larger proportionate interest. In 1928, two directors of the Steel Corporation were included in the largest 20 holders and the combined holdings of directors amounted to 1.4 per cent of the outstanding stock. In the Telephone Company, one director with .48 of one per cent of the stock was among the 20 largest holders. Furthermore, it is possible that the directors owned stock which was actually held in the name of brokers or nominees, tho the amount thus owned does not appear likely to have been great.

Other companies could be named in which the ownership is almost as completely subdivided as in these three.

In such companies where does control lie? To answer this question, it is necessary to examine in greater detail the unnamed holders combined (there were 19 directors) had but .7 of one per cent. Presumably most of the directors held amounts of stock too small to be included in this group. See *Regulation of Stock Ownership in Railroads*, op. cit., pp. 142 and 143.

5. The 20 largest holders of the Pennsylvania Railroad held 3.6 per cent before adjustment and only 2.7 per cent after adjustment.

ditions surrounding the election of the board of directors. Ordinarily, at an election, the stockholder has three alternatives. He can refrain from voting, he can attend the annual meeting and personally vote his stock,⁶ or he can sign a proxy transferring his voting power to certain individuals selected by the management of the corporation, the proxy committee. As his personal vote will count for little or nothing at the meeting unless he has a very large block of stock, the stockholder is practically reduced to the alternative of not voting at all or else of *handing over his vote to individuals over whom he has no control and in whose selection he did not participate*. In neither case will he be able to exercise any measure of control. Rather, control will tend to be in the hands of those who select the proxy committee by whom, in turn, the election of directors for the ensuing period may be made. Since this committee is appointed by the existing management, the latter can virtually dictate their own successors. Where ownership is sufficiently sub-divided, the management can thus become a self-perpetuating body even though its share in the ownership is negligible.⁷ This form of control can properly be called "management control."

Such control, though resting on no legal foundation, appears to be comparatively secure where the stock is widely distributed. Even here, however, there is always the possibility of revolt. A group outside the management may seek control. If the company has been seriously mismanaged, a protective committee of stockholders may combine a number of individual owners into a group which can successfully contend with the existing management and replace it by another which in turn can be ousted only by revolutionary action. Thus, the unsuccessful management of the Childs' restaurant chain was expelled by the action of a minority group after the former had made itself thoroughly unpopular, so it was

6. The use of a personal proxy to represent only the particular stockholder is for this purpose equivalent to his personal attendance at the stockholders' meeting.

7. The nearest approach to this condition which the present writer has been able to discover elsewhere is the organization which dominates the Catholic Church. The Pope selects the Cardinals and the College of Cardinals in turn select the succeeding Pope.

charged, by trying to turn its patrons into vegetarians.⁸ Likewise, the management of the Youngstown Sheet & Tube Company appears to have found itself confronted in 1929 with the alternative of giving way to the newly created minority interest of a group of individuals headed by Cyrus S. Eaton or of seeking support from some other source. In this case, the price of escaping the impending minority control was apparently thought to be the complete sacrifice of independence through merger with the Bethlehem Steel Corporation.⁹

Under these conditions, the stockholder has little power over the affairs of the enterprise, and his vote, if he has one, is rarely capable of being used as an instrument of democratic control. For the most part control is quietly exercised over a period of years without any active contest and the stockholder is able to play only the part of the rubber stamp. Occasionally he may have the opportunity to support one side or the other in a fight to oust those in power, a position not unlike that of a populace supporting a palace revolution. Thus in a management controlled company the separation of ownership and control has become virtually complete. The bulk of the owners have in fact almost no control over the enterprise, while those in control hold only a negligible proportion of the total ownership.

Corporate control thus appears in many forms — relatively defined and relatively stable legal positions, loosely defined and somewhat more precarious factual situations.

8. See *New York Times* and *Wall Street Journal*, February 1 to March 8, 1929, particularly advertisements appearing in the former on February 16, 18 and 20, 1929, and the newspaper reports of the proceedings at the annual stockholders' meeting published in both periodicals on March 8, 1929.

9. See *New York Times* and *Wall Street Journal*, March 10 to April 12, 1930, and reports of subsequent litigations as given in the same periodicals between April and December 1930. If the merger with Bethlehem had been successful, most of the existing management of the Youngstown company would presumably have retained their position of management, if not of control. Such is not likely to have been the case under Eaton control. This was clearly brought out by the testimony of Mr. Campbell, President of the Youngstown Sheet and Tube Company, in the Youngstown Case.

Each form is not complete in itself and exclusive of others. Several bases may reinforce each other. Thus the controlling management of the Consolidated Gas, Electric Light & Power Company of Baltimore, feeling its control endangered by a growing minority interest, organized a voting trust, broke up the threatening minority, and then terminated the trust at the end of a year when it appeared to be no longer necessary, returning to their old basis of management control.¹ In this case, a group with factual control reinforced its position by the temporary use of a legal device. On the other hand factual control may be limited to the point where it can scarcely be exercised. The pressure from creditors when a firm is financially insecure may go to the point where a bondholders' committee itself may be considered to have control.

Sometimes factual control is not found in the hands of any single group. We have seen how dependent a controlling minority may be upon the coöperation of the management and how a controlling management may have to accede in a measure to the demands of a strong minority in order to maintain its measure of control. It is not unusual for two or more strong minority interests to enter into a working arrangement by which they jointly maintain control; or a minority and a management may combine as "the" control. In such cases we may say that control is divided and can refer to the situation as "joint control."²

THE SEPARATION OF OWNERSHIP AND CONTROL AMONG THE 200 LARGEST AMERICAN CORPORATIONS

With these various types of legal and factual control in mind, an effort has been made to discover how far each type exists among the largest American corporations. For this purpose a list of the two hundred largest railroad, public util-

1. N. Y. T., June 26, 1929, and M. P. U., 1930.

2. It must of course be apparent that whenever two or more individuals exercise power (or important powers) over an enterprise such that each must adjust his action with regard for the position of the other, we have a case of "joint control." For the present purpose, "joint control" is used to apply only where groups with radically different interests share "control."

ity, and industrial corporations, representing practically half of corporate industry at the end of 1929, was compiled and classified according to type of control and the degree of separation of ownership and control.³ Figures in some detail are given in Tables II and III, at the close of this article (pp. 98-99 below).

The classification is inevitably attended by a large measure of error. In many cases no accurate information is available, the result being at best an inference drawn from fragmentary evidence. In many other cases the management of the corporation itself would be puzzled to answer the question "Who is in control?" This is particularly true of corporations subject to "joint control." In these cases not infrequently several men or groups of men maintain positions partly by reason of their ownership of a portion of the corporation's stock; partly by reason of their personal influence; partly because they are connected with institutions or interests whose antagonism might be dangerous to the corporate welfare or whose favor might be to its advantage. Out of this mass of imponderables their position is secure for the time being. But an outsider cannot estimate, and the insider frequently does not know, which of the various elements, if any, is dominant.

In seeking to classify according to the type of control, reasonably definite and reliable information was obtained for nearly two-thirds of the companies. Legal devices such as holding companies, voting trusts and non-voting common stock are accurately reported in the manuals. Where a stock

3. For the basis of compilation of the "largest 200" corporations at the end of 1929, see "The Growth in the Relative Importance of the Large Corporation in American Economic Life" by the present writer, *American Economic Review*, Vol. xxi (March 1931), p. 10. The method described there was followed with respect to the 1930 Moody's Manuals. At the end of 1929 the gross assets of the "200 largest" companies amounted to 81.2 billion dollars while the gross assets of all corporations except banks, insurance companies and similar financial corporations, amounted to approximately 170.0 billion dollars (preliminary estimate). The 200 corporations thus controlled approximately 47.7 per cent of such corporate wealth. This compares with 44.0 held by the then 200 largest corporations at the end of 1927.

is not listed or traded on any public exchange, the fact may be taken to indicate the lack of an important public interest in the stock of the company. In many cases, the exact holdings of the principal interests have been reported — particularly in the railroad field.

Where reliable information has not been directly available it has been necessary to depend upon newspaper reports — not necessarily accurate in themselves — but valid when supported by evidence from other sources.⁴ It was reported in the *New York Times*,⁵ for example, that an important interest in the United States Rubber Company had been acquired by the Du Pont interests in 1928. This evidence, unsatisfactory in itself, was supported by later reports that Du Pont interests had formed the Rubber Securities Corporation and placed in it their holdings of United States Rubber stock,⁶ and by the replacing of the former president of the company by Mr. F. B. Davis, Jr., a director of E. I. du Pont de Nemours Company and formerly president and general manager of one of its subsidiaries.⁷ Further, the *Wall Street News* reported that the Du Pont family held 14 per cent of the voting stock early in 1928.⁸ The number of stockholders in January, 1929, was reported as 26,057.⁹ Since the Rubber Securities Corporation had a total capital stock amounting to less than the value of the stocks of the United States Rubber Company necessary to give majority control, and since

4. The use of newspapers as a source of information deserves a word of comment. The ordinary news sections of a paper are usually read as a matter of interest while the financial sections are very much more likely to be read as, in part, a basis for action on the part of the reader. Accuracy therefore becomes important to the reader. A financial page which was continuously inaccurate should soon come to be known as such, and be avoided. The two papers here particularly employed, the *New York Times* and the *Wall Street Journal*, have excellent reputations for accuracy and in general can be relied upon even though particular statements may be inaccurate because of typographical or other error. Information based on a series of statements by these papers in regard to financial matters should within reason be accepted as reliable.

5. *New York Times*, April 16, 1928.

6. *Wall Street Journal*, December 7, 1929.

7. *S. C. R.* April 24, 1920.

8. *Wall Street News*, April 19, 1928.

9. *S. C. R.* April 24, 1929.

the list of stockholders was so large, it was assumed that the Du Pont interests did not hold a majority of the outstanding stock. This was supported by other evidence of a less precise nature. On this basis, the United States Rubber Company was classed as controlled by a minority interest.

Many of the corporations could not be so accurately classified. The dividing line between control by a minority interest and control by the management is not clear, and many companies had to be classed as doubtful. Thus, with regard to the Allied Chemical and Dye Corporation, standard Corporation Records reports that in 1927 the Solvay American Investment Corporation was formed under the control of Solvay & Co. of Belgium to hold 18.1 per cent of the then outstanding stock of Allied Chemical,¹ and there is no report of a change in its holdings since that time. In 1929 three of the ten directors of the Allied Chemical and Dye Corporation were also directors of the Solvay American Investment Corporation. The stock of the former is known to be widely held. Recently the New York Times reported that the above investment company was its largest stockholder.² On the basis of this information the company was classed as doubtful but presumably minority controlled.

For some other cases in the doubtful group, little information was obtained and the companies were classified on a basis of general "street knowledge." The possible error in this group is therefore considerable. On the whole, information could be most readily obtained for the railroads and public utilities, since regulation of these fields has required a greater publicity of accounts and has yielded important government reports. Explicit information on the railroads was available from the very competent study of the ownership of railroads already referred to and made under the direction of Dr. Walter M. W. Splawn, Special Counsel to the House Committee on Interstate and Foreign Commerce.³ Less information was available with respect to the utilities,

1. S. C. R. September 18, 1929, p. 6331.

2. N. Y. T., May 16, 1931.

3. Regulation of Stock Ownership in Railroads.

except where one company owned stock of another. The industrials are undoubtedly the least accurately classified.⁴

In the process of classification, certain arbitrary judgments had to be made. Corporations which appeared to be owned to the extent of 80 per cent or more by a compact group of individuals were classed as private and those in which the public interest appeared to be larger than 20 per cent but less than 50 per cent were classed as majority owned. Companies were regarded as controlled by a legal device only where there appeared to be a very considerable separation of ownership and control. A mild degree of pyramiding or the issuance of non-voting preferred stock was disregarded. The dividing line between minority and management control was drawn roughly at 20 per cent, tho in a few special instances a smaller holding was credited with the power of control. It is notable that in none of the companies classed under management control was the dominant stock interest known to be greater than 5 per cent of the voting stock. Cases falling between 20 and 5 per cent were usually classed as joint minority-management control. Perhaps others should be classed in this category.

Many cases were found in which the immediate control of a corporation was exercised by a second corporation through a dominant minority stock interest.⁵ When the controlling corporation was itself management controlled, the first company was classed as minority in its immediate, but management in its ultimate control. If the controlling company was controlled otherwise than by the management, the first com-

4. Dr. Splawn's report gave not only accurate data with respect to the railroads but served indirectly to support the data obtained in the other two fields. Before his report was published, the present writer had gathered information on the largest 200 companies in 1927 and classified them according to type of control. Comparison of the results insofar as railroads were concerned with the data supplied by Dr. Splawn showed almost no cases of inaccurate classification. While this applies only to the railroads, it suggests that the data relied upon for classification is essentially satisfactory.

5. A corporation controlled by another corporation through majority ownership or a legal device was classed as a subsidiary of the latter and disregarded except where an important element of pyramiding entered in.

pany was classed as minority in its immediate control, but pyramided in its ultimate control. Likewise, in the case of joint control, insofar as ultimate control was concerned, each such company was treated as if it were two companies of half the size, one controlled by each group sharing the control. Thus a company that was jointly controlled by a minority and the management would be classed in ultimate control as one-half company minority controlled and one-half company management controlled. Only five companies had to be subdivided in this manner.

With these reservations as to the source of the material, and the method of handling it, let us examine the type of control exercised over the 42 railroads, the 52 public utilities, and the 106 industrials which compose the list of 200 largest companies at the end of 1929. Of these companies *ultimate control* appeared to be:

	By Number	By Wealth
Management control.....	44%	58%
Legal device.....	21%	22%
Minority control.....	23%	14%
Majority ownership.....	5%	2%
Private ownership.....	6%	4%
In hands of receiver.....	1%	negligible
	<hr/> 100%	<hr/> 100%

While these percentages do not reflect a static condition and while in many cases they are based only on careful guesses, their cumulative effect is such as to indicate the great extent to which control of these companies rests on some factor other than ownership alone, and more striking still, the extent to which the management has itself become the control. That 65 per cent of the companies and 80 per cent of their combined wealth should be controlled either by the management or by a legal device involving a small proportion of ownership indicates the degree to which ownership and control have become separated. Only 11 per cent of the companies and six per cent of their wealth involved control by a group of individuals owning half or more of the stock interest outstanding.

Of the three groups concerned, the separation of ownership and control has become most nearly complete in the railroads and utilities (See Table II). Out of 42 railroads, 26 were management controlled or controlled through minority interests by other roads which were in turn management controlled. Thus 62 per cent of the railroads and 79 per cent of their assets involved this high degree of separation of ownership and control. In addition $7\frac{1}{2}$ roads were ultimately controlled by pyramiding ($5\frac{1}{2}$ being in the Van Sweringen System) indicating a total of 80 per cent of the railroads and 94 per cent of their wealth controlled by individuals lacking an important proportion of the total ownership.

The public utilities show a greater use of legal devices. Three were controlled by voting trusts; in one case combined with non-voting common stock. Three others were controlled by non-voting stock and two by the issue of special vote-weighted stock. Two were controlled by pyramided structures, while in most of the utilities a greater or less degree of pyramiding was found. In all, 19 of the 52 utilities were classed as ultimately controlled by a legal device, while $19\frac{1}{2}$ were classed as ultimate management control. In all, 74 per cent of the companies and 92 per cent of their wealth involved control without important ownership.

The separation appears to have progressed least far in the case of the industrials. Even in this field, however, the separation has assumed considerable importance. According to the classification of industrials, which it must be remembered is more subject to error than either of the foregoing groups, 54 per cent of the companies and 57 per cent of their wealth were controlled either by a legal device or by the management.

CONCLUSION

It is apparent that, with the increasing dispersion of stock ownership in the largest American corporations,⁶ a new condition has developed with regard to their control. No longer

6. See the *Diffusion of Stock Ownership in the United States* by the present writer. *Quarterly Journal of Economics*, Vol. xlv (August, 1930), p. 561.

are the individuals in control of most of these companies, the dominant owners. Rather, there are no dominant owners, and control is maintained in large measure separate from ownership. As has been indicated, control as something apart from ownership on one hand and from management on the other is a new concept ill defined in practice. It deals with a condition which exists only relatively and one on which information is of the most approximate character. Probably the condition of "joint control" which appears only rarely on the above list is more characteristic of the big corporation than is indicated, control in fact being not a single clearly defined phenomenon local to an individual or small group, but an element in the organization of industry which is broken up and appears in various forms. Like sovereignty, its counterpart in the political field, it may be held to a greater or less extent by a wide variety of individuals. We are justified, however, in treating it here as a single factor; because whether whole or divided, whether dependent upon proxy machinery, legal device, a measure of ownership, or a strategic position astride the management, it has in very considerable extent become separate from ownership. Formerly assumed to be merely a function of ownership, control now appears as a clearly distinguishable factor.

This separation of ownership and control involves a change in the organization of enterprise almost as revolutionary as that which occurred in the industrial revolution. The corporate system is now bringing a change in the position of capital much as the factory system changed that of labor. As the factory system divorced control from labor so the corporate system is divorcing control from ownership. The one brought the labor of a multitude of workers under a single control, the other is bringing the wealth of countless owners under the same unified control. The limits to the size of the business unit have thus been extended far beyond the bounds of the wealth of the individual or partnership, as they were before extended beyond the bounds of the labor of a single worker and his apprentices. The economic areas within which production can be conducted on a rational coördinated

basis become limited only by the ability of a few individuals to administer successfully the huge organization of workers and of wealth which can be brought under their control.⁷ At the same time, the corporate system creates a vast class of individuals dependent, in so far as their wealth is concerned, on the action of others just as the factory system created a vast class of dependent workers.

To the economist, this new revolution presents a challenge. As the work of Adam Smith, "the first great theorist of that stage of capitalistic enterprise which we call the domestic system,"⁸ had to be reconstructed during the nineteenth century to fit an economy dominated by the factory system, so must the modern economist redescribe economic relations in terms of an economy dominated by a relatively few huge enterprises in which both laborer and owner are separated from control. The individualism of Adam Smith's private enterprise has in large measure given way to the collective activity of the modern corporation, and economic theory must shift its emphasis from analysis in terms of competition to analysis in terms of control.

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7. One hundred companies the size of the American Telephone and Telegraph Company would control all the wealth in the United States, would employ all the working population, and, if there were no duplication of stockholders, would be owned by every family in the country.

8. Edwin R. A. Seligman, *Introduction to the Wealth of Nations*, Everyman's Library Edition, N. Y., Vol. i, p. xiii.

TABLE II
SUMMARY ACCORDING TO TYPE OF IMMEDIATE CONTROL OF "200 LARGEST" CORPORATIONS*

TYPE OF CONTROL	RAILROADS		PUBLIC UTILITIES		INDUSTRIALS		TOTAL	
	No. Companies	Assets in Million Dollars	No. Companies	Assets in Million Dollars	No. Companies	Assets in Million Dollars	No. Companies	Assets in Million Dollars
I. Private Ownership.....	2	276	2	221	8	2,870	12	3,367
II. Majority Ownership.....	1	283	3	480	6	779	10	1,542
III. Minority Control.								
(a) Known to be so controlled.	13	4,309	17	9,271	14	6,929	44	20,509
(b) Thought to be so controlled.	—	—	5	834	24	4,250	29	5,084
IV. Legal Device.....	1	1,600	10	5,372	10	2,260	21	9,232
V. Management Control.								
(a) Known to be so controlled.	14	15,026	5	6,598	2	2,802	21	24,426
(b) Thought to be so controlled.	—	—	5	1,442	39	9,934	44	11,376
Joint Control.....	9	3,191	4	1,441	3	532	16	5,164
Special Situations.....	2	266	1	108	—	—	3	374
TOTAL.....	42	24,951	52	25,767	106	30,356	200	81,074

* See Note 1, page 68.

TABLE III
SUMMARY ACCORDING TO TYPE OF ULTIMATE CONTROL
OF "200 LARGEST" CORPORATIONS*

TYPE OF CONTROL	NUMBER OF CORPORATIONS				PROPORTION OF COMPANIES BY INDUSTRIAL GROUPS			
	Rail-roads	Public Utilities	Industrials	Total	Rail-roads	Public Utilities	Industrials	Total
I. Private Ownership	2	2	8	12	5%	4%	8%	6%
II. Majority Ownership	1	3	6	10	2%	6%	6%	5%
III. Minority Control	4½	7½	34½	46½	11%	14%	32%	23%
IV. Legal Device	7½	19	14½	41	18%	36%	14%	21%
V. Management Control	26	19½	43	88½	62%	38%	40%	44%
In Receivership	1	1	—	2	2%	2%	—	1%
TOTAL	42	52	106	200	100%	100%	100%	100%

IV. & V. Management Control or Legal Device involving a small Proportion of Total Ownership.....

33½ 38½ 56½ 129½ 80% 74% 54% 65%

* See Note 1, page 68.

TABLE III (Continued)

TYPE OF CONTROL	WEALTH OF CORPORATIONS IN MILLION DOLLARS				PROPORTION OF WEALTH BY INDUSTRIAL GROUPS			
	Rail- roads	Public Utilities	Indus- trials	Total	Rail- roads	Public Utilities	Indus- trials	Total
I. Private Ownership.....	276	221	2,869	3,366	1%	1%	9%	4%
II. Majority Ownership.....	283	480	779	1,542	1%	2%	3%	2%
III. Minority Control.....	704	1,261	9,258	11,223	3%	5%	31%	14%
IV. Legal Device.....	3,852	9,406	4,307	17,565	15%	37%	14%	22%
V. Management Control.....	19,675	14,291	13,142	47,108	79%	55%	43%	58%
In Receivership.....	161	108	—	269	1%	—	—	—
TOTAL.....	24,951	25,767	30,355	81,073	100%	100%	100%	100%

IV. & V. Management Control or Legal
Device involving a small Proportion
of Total Ownership..... 23,527 23,697 17,449 64,673 94% 92% 57% 80%

WANTS AND ACTIVITIES IN MARSHALL

SUMMARY

I. Wants and Activities; Utility Theory and the Development of Character through the Exercise of Faculties, 102.— II. The Supplies of the Factors of Production, 113.— III. Real Costs, 119.— IV. Free Enterprise and *Laissez-faire*, 123.— V. Social Evolution, 128.— VI. The "Natural Order," 132.— VII. Human Nature, 135.— Conclusion, 139.

"ORTHODOX" economic theory has been under heavy fire for its alleged narrowness, its failure to escape the confines of a small complex of abstract theoretical problems. Moreover, this characteristic has been freely blamed for a great many "wrong" views of concrete phenomena which have been held by orthodox economists. The source of the error is usually held to lie in identifying abstract conceptions with reality.¹ But another hypothesis is possible, that there have existed other elements of thought in the work of the orthodox economists which are in part responsible for their peculiar views.

To analyze the whole history of orthodox economic thought from this point of view would be a fruitful, tho a heavy task. The present study sets itself a much more limited aim; to examine the work of one leading orthodox economist as a sample, with a view to seeing what basic elements make up his thought. For such a study Marshall presents an excellent opportunity. On the one hand he is overwhelmingly the most eminent representative in his generation of the orthodox school, so that their case may almost be said to stand or fall with his work. On the other hand he went to far greater pains than most economists of his tradition to avoid the charge of abstractness and unreality. He had a profound distrust of "long trains of deductive reasoning,"² and always attempted to maintain close touch with the concrete events in the

1. What Whitehead calls the "fallacy of misplaced concreteness." See his *Science and the Modern World*.

2. *Principles of Economics*, London, 1925, 8th Edition, p. 781. All references to the *Principles* in this paper are to the 8th edition.

worlds of business and labor of his day.³ In short, he was in a sense an example of what the "unorthodox" are striving for; yet he failed to satisfy them.

The present study will maintain the thesis that Marshall's economic work consists mainly of two major strains of thought. The first is that which forms the principal basis of continuity with both his predecessors and his successors in the orthodox tradition. It is his "organon," the nucleus of his economic theory proper. In certain respects he attributes concrete validity to it, probably beyond the point to which many could now follow him; but in certain other very important respects he is conscious of its abstractness, and attempts to apply the necessary correction himself.

This correction does not, however, as the unorthodox would have it, consist simply in an appeal to "facts" which are in the nature of the case isolated and unconnected, but involves the interweaving with his organon of a second body of strictly theoretical doctrine, a theory of the progressive development of human character and activities in relation to economic wants and want-satisfaction. Only the interweaving of the two elements explains Marshall's characteristic views on a whole series of concrete problems.

While this second element is mainly considered in the following pages, the preoccupation of the study as a whole is with the *logical* structure of Marshall's thought. Its psychological origins in Marshall's character or its relations to the social situation of his time are only incidental. The question of the sense in which it represents an "ideology" of the English middle class, interesting tho it is in itself, cannot here be subjected to systematic analysis.

I

Professor Schumpeter⁴ makes a sharp distinction between the classical school of economics and the modern utility theory; Marshall he places definitely in the latter category.

3. See Keynes' Memoir, in *Memorials of Alfred Marshall*.

4. *Dogmengeschichte der Volkswirtschaftslehre, Grundriss der Sozialökonomik*, I.

Furthermore Keynes tells us that Marshall was an independent discoverer of the principle of marginal utility.⁵ It can scarcely be denied that a very great part of his theoretical analysis is built upon that principle. This is, indeed, necessarily true in so far as his economics is the science of wealth. For the modern conception of wealth is based on that of utility; in so far as wealth is a quantity at all it consists of "satisfactions."⁶ The same, of course, holds good of "production," which is the production of utilities, and hence of physical commodities only in so far as they are utility-bearers, or want-satisfiers. It can be said that the main logical structure of Marshall's economic theory rests upon this foundation. In relating Marshall's discovery of marginal utility Keynes compares him to Watt, and says that, like Watt, "he sat down silently to build an engine."⁷ The engine he built rested definitely on the new principle he had discovered, just as that of Watt did.

In terms of this interpretation the two starting points of Marshall's strictly economic theory lie in the concept of utility and the marginal idea. One important result is the conception of consumers' surplus. But the main line of his reasoning leads him into the general value problem, where a large part is played by another of his own conceptions, the Principle of Substitution. This, in turn, gives a certain provisional interpretation of cost of production, in terms of utility: an interpretation substantially identical with what is now generally called opportunity cost, and by Henderson transference cost.⁸ The same general analysis applied to the values of the agents of production gives the other side of the picture, the theory of the distribution of wealth, where again the leading conception, that of marginal productivity, is a derivative of that of utility, since "production" in the economic, as distinct from the technological, sense consists in the satisfaction of

5. Memorials, p. 23.

6. See F. H. Knight, *Relation of Utility Theory to Economic Method*, in *Methods of Social Science*, S. A. Rice, Editor, p. 65.

7. Memorials, p. 23.

8. This is of course not Marshall's last word on cost. A discussion of that point will be found below, pp. 849 ff.

wants. Finally the whole is generalized in terms of the doctrine of Maximum Satisfaction; a doctrine which, in spite of Marshall's important criticism of it in terms of consumers' surplus, and of other qualifications, he recognizes as essentially valid.

This whole aspect of Marshall's economic thought forms a single coherent whole, a logical system, dependent on certain assumptions and generally valid within certain limits. The most important of those assumptions may be summarized as follows: (1) The edifice is built essentially on a competitive basis. He considers the case of monopoly, but separately. The most usual connotation of the term "normal" for him, is, at least in a relative sense,⁹ "competitive." (2) It assumes that wants are given independently of the processes leading to their satisfaction, *i.e.* that they are constants in the problem of economic equilibrium. The whole concept has reference to the satisfaction of given wants and not to the explanation of their existence. (3) It assumes that all moveable economic resources are effectively mobile and divisible. (4) Action must be rationally directed toward want-satisfaction and hence must be neither in itself irrational, for instance emotionally determined, nor directed to ends other than want-satisfaction, such as deception or coercion. It is to be noted that it is the wants of people as consumers and not as producers which are considered as being satisfied, and that under a competitive order the last two factors, "force and fraud," are ruled out, partly by competitive pressure, partly by a legal authority which sets up rules of the game and penalizes infractions of them.

This utility theory accomplishes two things. First it provides, in so far as the assumptions on which it rests are valid and usable, an explanation of why economic processes take the course they do. Secondly it provides a norm of economic efficiency, in terms of an optimum distribution of resources and a maximum of possible want-satisfaction under the conditions given. Both results are used by Marshall. It may be noted, however, that the normative use of economic concepts

9. Qualified principally by his treatment of the time element.

is peculiarly dependent on two of the above assumptions, the fixity of wants and rationality. On the one hand the satisfaction of known wants supplies the only possible norm in terms of which the desirability or efficiency of an economic process can be judged. Once the ends themselves come to vary as a function of the process of their attainment, the standard no longer exists. On the other hand the same process of want-satisfaction is itself the most general and obvious meaning of rationality of action. The very concept of rationality is meaningless without reference to given ends¹ while non-rational want-satisfaction is nonsensical except in terms of divergence from a rational type. Of course this is not to say that all action is actually rational even in such a limited sense, but only that its rationality is one principal criterion of the abstract type of action called "economic." How far Marshall believed both these assumptions to be correct for the concrete world will be discussed below.

It is not to be imagined that this element of Marshall's thought is to be found in his writings, worked out as a complete logical system apart from the rest of his ideas, and recognized by him as such. Nor is he always explicit in making the assumptions brought out above. On the contrary its elements are almost inextricably interwoven with other strands of thought. This is a natural result of Marshall's refusal to work out his more abstract ideas to their logical conclusions, on the plea of the fruitlessness of "long chains of deductive reasoning." It has been necessary, nevertheless, to sketch the outlines of this implicit, logical system in order by contrast to get a clear view of the other aspect of his doctrine which is of particular interest here. It is noteworthy, however, that the majority of points which Keynes lists as the main contributions of the *Principles* fit into this scheme.² Exceptions are the element of time, a great contribution, but one which does not in any way affect the problems of this paper; the historical

1. This is not, of course, to say that the ends themselves must be rational or "reasonable." That would involve a wider meaning of rationality than is under consideration here. The present sense of the term makes it identical with "efficiency."

2. *Memorials*, pp. 41-46.

parts and, in a sense, the supposed resolution of the Ricardo-Jevons controversy, to both of which attention will be called later. It is because of the predominance of the utility element in Keynes' list, and even more in the work of some of Marshall's followers (especially Henderson) that I have ventured to call it the backbone of his technical economic theory. Yet how far it was from dominating the whole of his thought, the course of the discussion should make abundantly clear. Finally, it is perhaps significant that Keynes does not list his treatment of the supplies of the productive factors at all, tho it certainly represents a departure from the views of his predecessors in important respects.

In attempting to ferret out elements of Marshall's thought other than this utility theory, the best starting point lies perhaps in his definitions of economics. The first he gives in the *Principles* is "a study of mankind in the ordinary business of life,"³ which is surely inclusive enough. This is somewhat narrowed down by what follows: "it examines that part of individual and social action which is most closely connected with the attainment and with the use of the material requisites of well being."⁴ But Marshall cannot mean to limit himself to the "material"⁵ requisites. Elsewhere he speaks of economics as a science especially concerned with the "measurement of the force of a person's motives"⁶ in terms of money. "It is this definite and exact money measurement which has enabled economics far to outrun every other branch of the study of man."⁷ But, however important measurability in terms of money is for Marshall in some respects, the real motive for the breadth of his conception of the scope of economics lies elsewhere. Later, in his description of its field of study at the beginning of the *Principles*, he goes on to say, "Thus it is on the one side a study of wealth, and on the other *and more important side*⁸ a part of the study of man.

3. *Principles*, p. 1.

4. *Ibid.*, p. 1.

5. Marshall fails to define this economically ambiguous term more closely.

6. *Principles*, p. 15.

7. *Ibid.*, p. 14.

For man's *character*⁸ has been moulded by his everyday work and the material resources which he thereby procures, more than by any other influence unless it be that of his religious ideals. . . ."⁹ Thus he explicitly states that the study of the mechanism of want-satisfaction, the subject matter of utility theory, is only a part of economics, and the less important part. The more important is the influence of economic conditions on human character.

Marshall found one aspect of this influence in the degrading effect of poverty on character and through it on industrial efficiency. Tho the problem of poverty played a leading part in his thought,¹ his treatment of it may largely be subsumed under the utility conception. A different phase of his interest in character is of primary interest here; his belief that certain types of economic activities, pursued not for ulterior motives but mainly as ends in themselves, are the principal agents in the formation of the noblest qualities of human character and the main fields of their expression.

The concrete description of what types of activities and character he had in mind is to be found principally in his picture of "free industry and enterprise," with which they are intimately associated. They consist in two sets of virtues; on the one hand, energy, initiative, enterprise; on the other, rationality, frugality, industry, honorable dealing. With them are contrasted, on the one side, sluggishness, idle stagnation, slavery to custom, lack of ambition; on the other, luxury, ostentation, waste, unreliability. To prove that a deep-rooted belief in the absolute value of these qualities of character and the activities which foster and express them is the main motive of Marshall's inclusion of the "study of man" as well as that of "wealth" in his definition of economics, and is the main counter-weight to "utility economics" in his thought as a whole, is the principal task of the present paper.

As has been noted above, utility economics, strictly construed, is forced to assume that the wants, whose satisfaction

8. Italics mine.

9. Principles, p. 1. See also the Economics of Industry by A. and M. P. Marshall, p. 4.

1. See Keynes, Memorials, p. 16.

it studies, are given as data. It is precisely on the question whether this assumption is justified, that Marshall's interest in activities first comes clearly to light, manifesting itself in a manner which partly determines his stand on an important technical question of theory.

For one who carries the utility analysis so far as Marshall does, the caution with which he deals with the subject of wants is surely remarkable. Though admitting that "until recently the subject of demand or consumption has been somewhat neglected"² and that there is a "growing belief that harm was done by Ricardo's habit of laying disproportionate stress on . . . cost of production"³ he springs valiantly to the defense of Ricardo as more the victim of misunderstanding than of error.⁴ He explicitly refuses to make a theory of consumption the "scientific basis of economics" and his whole treatment of wants is more conspicuous for its warnings against pitfalls than for emphasis on the importance of his positive contributions to the study.

But what are those pitfalls? They are certainly not connected with any doubts of the soundness of the principle of marginal utility or of consumers' surplus. It is not positive error of which he is afraid, but the negative error of omission. A hint of what he thinks may be in danger of neglect is given in the following remarkable passage:⁵ "It is only temporarily and provisionally that we can with profit isolate for study the economic side of his (man's) life; and we ought to be careful to take together in one view the *whole of that side*."⁶ There is a special need to insist on this just now because the reaction against the comparative neglect of the study of wants by Ricardo and his followers shows signs of being carried to the opposite extreme. It is important still to assert *the great truth*⁶ on which they dwelt somewhat too exclusively; *viz.*

2. Principles, p. 84.

3. Ibid., p. 84.

4. Ibid., p. 84.

5. Principles, p. 85. Note also on the same page that he consents to study wants only as "considered in their relation to human efforts and activities."

6. Italics mine.

that while wants are the rulers of life among the lower animals, it is to changes in the forms of efforts and activities that we must turn when in search for the keynotes of the history of mankind."

This is apparently not merely the assertion on general grounds that the influence of activities on wants may be important; the reference to Ricardo and his followers indicates that Marshall also thought that it was the great virtue of the classical labor theory of value, as a technical economic theory, to have taken account of that fact, while the utility theory with its emphasis on demand was in danger of neglecting it. But from the technical viewpoint of economic theory, the relation of the labor theory of value to the utility theory is that of a less to a more inclusive and accurate explanation of a certain body of facts; *i.e.*, the labor theory is true as a special case of the wider theory, dependent only on certain additional assumptions ⁷ which, many later theorists feel, are more doubtful than those involved in the utility theory. Certainly Ricardo was a pure theorist. So far as I know he had nothing to say about the relative part played by wants in animal and human behavior;⁸ if he had, it would certainly have been irrelevant to the comparatively narrow range of his theoretical problems. Moreover it seems sheer fiction to assert, as Marshall does, that the reason Ricardo addressed himself primarily to the problems of cost of production was his realization of their greater importance.⁹ While it is true he realized demand is important, it is not true that he *understood* its part — in fact it was primarily his failure to understand the distinction between total and marginal utility which forced him to fall back on labor cost as a second best explanatory principle, the defects of which he himself saw very clearly. It is highly unlikely that, had he known the principle of marginal utility, he would have come to be con-

7. The most important being of course that the cost factors other than labor enter into the marginal cost of production of all commodities in the same proportion as labor.

8. I shall return presently to the reasons for Marshall making this somewhat curious distinction. See below, pp. 13 ff.

9. Principles, App. I, Sec. 2.

sidered the great proponent of the labor theory, as Marshall implies he would.

Then why does Marshall, whose general theoretical doctrines would for themselves tend to alienate him from Ricardo,¹ defend him so strongly and even read into Ricardo views on non-theoretical subjects which it is exceedingly doubtful he ever held? Why is he so concerned to defend himself even beyond the requirements of economic theory against the suspicion of overemphasis on demand, and why is he so insistent on the importance of the problems of supply?² It is true that those problems are both extremely intricate and affect any economic policies of far-reaching scope most vitally; Marshall is interested in them for both reasons. But for the present another aspect is more important. It seems beyond doubt that a main — more probably *the* — main motive of Marshall's interest in supply, more especially in the supply of the productive factors, lies in the fact that it is there that questions involving the types of energy, activity and character manifested in economic life impinge most directly on the problems of technical economic theory.³

The consideration of the economic order strictly as a mechanism of want-satisfaction reduces the activities involved in the process to means to an end, and the human qualities expressed in those activities to the same status.⁴ But Marshall is quite unwilling to accept such implications even for limited methodological purposes; for him the development of character is the main issue of human life. Hence even in the more abstract problems of economics his interest

1. See Schumpeter, *op. cit.*

2. It is, of course, possible that personal jealousy of Jevons, who published the utility theory before Marshall, but who probably did not anticipate Marshall in its discovery, played a part. It is true that Marshall's review of Jevons' Theory is not, considering the magnitude of Jevons' achievement, couched in very generous terms. But it is to me always highly dubious to explain important scientific views in terms of petty personal feelings. When there is another and much deeper explanation, which I feel certain is the case with Marshall, it seems futile to indulge in personalities.

3. The case of the supply of the productive factors will be taken up in detail in the next section.

4. Only for certain definitely limited scientific purposes, of course.

turns largely to the questions in which these aspects of social life are most concerned. The influence of this interest extends even to his analysis of wants themselves so that he says "much that is of chief interest in the science of wants is borrowed from the science of efforts and activities. These two supplement one another; either is incomplete without the other."⁵ But Marshall does not hesitate to give his own opinion of their relative importance: "if either, more than the other, may claim to be the interpreter of the history of man, *whether on the economic side or any other*, it is the science of activities and not that of wants."⁵ Even for the purposes of value theory, he definitely refuses to take wants as ultimate data without inquiring into their genesis.⁶

Moreover, Marshall's conviction of the importance of activities is not merely asserted as an antidote to overemphasis on demand; it enters directly into his positive theory of consumption. Part of that theory, centering around the principles of marginal utility and consumers' surplus, is independent of it, but in so far as Marshall has any further positive theory it is based directly on the relation of wants to activities. First take his doctrine of the standard of living. Instead of following his classical predecessors in including under that term all those habits of life which act as a check on population growth, he makes a sharp distinction between what he calls the "standard of life" and that of "comfort." The former means "the standard of activities adjusted to wants."⁷ A rise in it implies "an increase of intelligence and energy and self-respect; leading to more care and judgment

5. Principles, p. 90.

6. Only the failure adequately to consider this aspect of the case seems to enable Professor Homan to say that Marshall "made but little headway toward a scientific study of demand. As a result most of his subsequent analysis is confined to the study of supply." Contemporary Economic Thought, p. 226. Whatever the defects of his study of demand, they do not form the main motive for his emphasis on supply.

7. Principles, p. 689. Here, it is true, Marshall speaks of activities being "adjusted to wants." The relation is reciprocal, however, with the major emphasis, on the whole, as other passages show, on activities. Hence in classifying wants it is quite legitimate, on interpreting Marshall, to distinguish between those which are "adjusted to activities" and those which are not.

in expenditure, and to an avoidance of food and drink that gratify the appetite but afford no strength, and of ways of living that are unwholesome physically and morally."⁷ A rise in the standard of comfort on the other hand "may suggest a mere increase of artificial wants among which perhaps the grosser wants may predominate."⁸ This distinction would appear quite meaningless in terms of the original theoretical uses to which the doctrine was put. But in terms of Marshall's interest in activities for their own sake, the distinction between those changes in wants which are "adjusted to activities" and those which are "artificial"⁹ becomes significant.

Furthermore, a close examination of Marshall's statements on the subject of wants shows that he divides them into three categories. When he uses the term without qualification, as in the passage about the "great truth" cited above, and when he says "it is man's wants in the earliest stages of his development which give rise to his activities,"¹ the wants which rule the lower animals and man in those earlier stages are not wants in the ordinary sense, but simply biological needs.²

No doubt most sociologists, except those who hold that all of men's actions are determined by the biological struggle for survival alone, would agree with Marshall that "wants" in this peculiar sense are inadequate to explain the actions. But why interpret "wants" by themselves so narrowly? Surely most modern exponents of utility economics do not do so.

The second category of wants are those "adjusted to activities" which form part of a "standard of life," and the satisfaction of which "affords strength," *i.e.*, increases the

8. *Ibid.*, p. 690.

9. The term "artificial" clearly implies a value judgment which is, however, not arbitrary but deeply grounded in Marshall's whole position.

1. *Principles*, p. 89.

2. This is clearly evident from the context. He speaks (*Prin.*, p. 87) of that "need for dress which is the result of natural causes" and of house room satisfying "the imperative need of shelter from the weather" (p. 88), in both cases calling attention to the fact that the actual biological need forms but a small element in the effective demand for clothing and house room. And from this he concludes that demand cannot be understood in terms of "wants" alone.

efficiency of labor.³ It is of them that Marshall speaks when he says that "each new step upwards is to be regarded as the development of new activities giving rise to new wants."⁴ They are the only non-biological wants which he would dignify with the term "natural." Moreover this naturalness consists partly in the fact that, as the above passage indicates, they are not merely "adjusted" to activities, but rather created by them. The third category, finally, are those associated with the "standard of comfort," a rise in which "may suggest a mere increase of artificial wants among which perhaps the grosser wants may predominate." These wants appear to be wholly arbitrary, mere whims with no permanent foundation in life.⁵

Enough has been said to show clearly Marshall's view that what raises civilized man above the animals and the state of savagery is his whole-hearted devotion to a particular set of activities, and his development of a type of character. Wants not adjusted to such activities are not ultimate ends, even for the purposes of economics, but are "artificial." The real aims of life lie in the activities pursued as ends in themselves.⁶ This is what he seems to mean when he says "much that is of most interest in the science of wants is borrowed from the science of efforts and activities."

II

Perhaps the greatest of all controversies about the scope of economics has concerned the extent to which economics alone

3. "A rise in the standard of life for any one trade or grade will raise their efficiency." *Principles*, p. 689.

4. *Principles*, p. 89.

5. They are presumably expressed in the "evil dominion of the wanton vagaries of fashion" (*Prin.*, p. 89 Note) and the vulgarities of "sporting men" of which Marshall speaks at various points in highly derogatory fashion (for instance, *Memorials*, p. 102). He notes with satisfaction that "leisure is used less and less as an opportunity for mere stagnation; and there is a growing desire for those amusements . . . which develop activities rather than indulge any sensuous craving." *Principles*, p. 89.

6. "Work in its best sense, the healthy energetic exercise of faculties is the aim of life, is life itself." *Memorials*, p. 115. "Social good lies mainly in that healthful exercise and development of faculties which yields happiness without pall." *Memorials*, p. 310. See also *Memorials*, p. 367. This last is an interesting twist of hedonistic ideas.

is competent to furnish an explanation of the supplies of the factors of production. The classical economists, confidently resting their faith in the Malthusian doctrine of population, extended their claim very far. Recently indeed there has been a strong reaction from this view. Economists are becoming more and more disposed to turn over the burden to the psychologist or sociologist. But in this respect, as in his attitude toward cost of production, Marshall adheres closely to tradition, attempting a complete theory of population, labor exertion and saving within the framework of his economics.

In dealing with the first aspect of the supply of labor, its intensity, Marshall holds there is a positive functional relation to wages. His most general statement is: "We may conclude that increased remuneration causes an immediate increase in the supply of efficient work, as a rule, and that the exceptions to this rule are seldom on a large scale —." ⁷ It is clear from the context that he is thinking of the direct effect of remuneration on individual effort.

Of course he does not hold that this relation is universal. But the chief exception which he makes is highly illuminating: "Experience seems to show that the *more ignorant and phlegmatic of races and of individuals*,⁸ especially if they live in a southern clime, will stay at their work a shorter time, and will exert themselves less while at it if the rate of pay rises so as to give them their accustomed enjoyments in return for less work than before. But those *whose mental horizon is wider*,⁸ and who have *more firmness and elasticity of character*⁹ will work harder and longer the higher the rate of pay which is open to them; unless indeed they prefer to divert their activities to higher aims than work for material gain."⁹

There have usually been two explanations of the type of responsiveness to increased remuneration of which Marshall claims the existence. One is the hedonistic. This, however, involves difficulties in accounting for acquisition beyond a certain point, except under the impossible postulate that

7. Principles, pp. 528-529. See also Principles, p. 142.

8. Italics mine.

9. Principles, p. 528.

leisure has no hedonistic value. The very fact that Marshall assigns no limit to the acquisitive activities of the more advanced peoples makes it impossible for him to have held strictly to the hedonistic view in their case. The other is the postulate of an instinct of acquisition, which at least has the merit of evading this difficulty. An instinct is sublimely indifferent to results. But it would indeed be strange to subject those whose "mental horizon is wider" to the domination of an instinct which failed to control the "more ignorant." Nor does Marshall do so; quite the contrary. The behavior of the "more ignorant and phlegmatic of races" is strongly reminiscent partly of hedonism, partly of instinct, but that of the more enlightened is due to a rising "standard of life" involving the generation of new wants by new activities. That, and neither hedonism nor any instinctive greed, is Marshall's explanation of the tendency of modern men to do more rather than less work when their pay rises.¹

The exception which he makes of those who "prefer to divert their activities to higher aims than work for material gain" must of course not be forgotten. But what seems significant is that he ascribes so little, not so much, importance to it; the strongest thing he says is that it is "not devoid of significance."² Any sense of the sordidness of economic acquisition as such is totally absent. Indeed, it can be said that on the whole Marshall saw the field of business enterprise³ as the principal opportunity for the exercise of what he considered the noblest traits of human character. The wealth acquired in the process was not the aim, but rather a by-product, and one which was not without its dangers.⁴

It should be noted that in so far as Marshall's "activities" are ends in themselves, work being "the aim of life," there is no reason to suppose that the development of activities would

1. Compare Max Weber's discussion of the relation of traditionalism to the "spirit of capitalism," in *The Protestant Ethic and the Spirit of Capitalism*, Chapter II.

2. *Principles*, p. 529.

3. See D. H. Robertson, *Review of Memorials*, reprinted in his *Economic Fragments*.

4. See *Memorials*, p. 102.

lead to a greater *responsiveness* of labor exertion to wage changes. On the contrary it should lead to an indifference to mere wages, at least above the level necessary for full physical efficiency. But the development of activities is not for Marshall an isolated process; with it always goes an expansion of wants, adjusted to or created by activities. It is apparently out of the reciprocal relation of activities to the expanding wants "adjusted" to them that this responsiveness is derived. It is a striking fact, however, that the responsiveness is always conceived by Marshall in an *upward* direction; *increased* remuneration leads to an *increase* of efficient work. Tho I do not recollect his saying so explicitly, I am led to suppose that the opposite relation would exist only as a result of physiological or hedonistic causes.⁵ It should also be called to mind that the expansion of wants Marshall is here thinking of involves wants of a very particular sort, wants which are "adjusted to activities." Other wants, "a mere increase of artificial wants," would lead to quite different results.

In his treatment of labor exertion Marshall retained the basic doctrine of his predecessors, the close functional relation between effort and remuneration, but at least for modern times he discards their predominantly hedonistic explanation and substitutes his own conception of a rising standard of life, of wants adjusted to activities. His treatment of the population problem is very similar. Here again he adheres ostensibly to the doctrine of his predecessors, but reinterprets that doctrine in his own way. He starts by proclaiming the essential validity of Malthus' position regarding the supply of population.⁶ Moreover, in inquiring more specifically what is meant it turns out that he held the literal Malthusian position for most of history, and even today "over a great part of the world wages are governed nearly⁷ after the so-called iron or brazen law, which ties them close to the cost of rearing and

5. This would be one striking example of his doctrine that the reversal of many economic processes does not lead back to the original result.

6. Principles, p. 179.

7. It is hard to find any statement in Marshall without such qualification as a "nearly."

sustaining a rather inefficient class of laborers."⁸ Like most other Malthusians he does not think that in such times only positive checks operate — he has a good deal to say about several sorts of preventive checks, especially of an institutional nature.⁹ But he adheres to the main point, the essence of which is a static standard of living. Numbers, not the standard, change with a changing economic situation.

But Marshall specifically denies that the iron law holds for modern western countries. Somehow the western world has broken through the vicious circle. Yet in summing up he holds that "other things being equal an increase in the earnings to be had by labour increases its rate of growth." In other words the supply of labor generally responds to economic causes even in western countries. Wherein then lies the difference? Apart from any extent to which the Malthusian law may not have been superseded, the explanation lies in Marshall's interpretation, in the above phrase, of the term labor. The context shows that it cannot mean merely the number of laborers, but its "growth" in the western world also includes the increase of efficiency which accompanies a rising standard of life. He states, "It is still true even in England today that much the greater part of the consumption of the main body of the population conduces to sustain life and *vigour* — most of that expenditure which is not strictly economical as a means towards efficiency yet helps to form habits of ready resourceful enterprise and gives that variety to life without which men become dull and stagnant and achieve little, though they may plod much."¹ So that "the earnings got by efficient labor are not much above the lowest that are needed to cover the expenses of rearing and training efficient workers and of sustaining and bringing into activity their full energies."² Thus, with a rise in real wages the "quantity of labor" increases, even tho numbers do not, at least in the same proportion. And wages contain little

8. Principles, p. 531. It is evident that the persons here referred to are the "more ignorant and phlegmatic of races" discussed above.

9. See Principles, Bk. IV, Ch. IV, Sections 4, 5, 6.

1. Principles, p. 531.

2. Ibid.

surplus above the cost of production of labor because the increase of efficiency, directly or indirectly caused by that of wages, nearly keeps pace with the latter.

The cause of this increase is again the rise to a higher level of activities. Thus Marshall, while retaining the form of the classical law that the supply of labor is a function of the demand-price for it, gives it an interpretation, at least for modern western countries, in accordance with his central doctrine of the importance of activities, and involving a radical departure from Malthus. It should be observed too that his interpretation is in accordance with his classification of wants. Where men are ruled by animal wants, such as the instinct of reproduction, or by a *fixed* standard of living, a "standard of comfort," the iron law holds. They escape it only through a rising "standard of life" the essential element of which is the activities to which wants are adjusted.

On the problem of the supply of capital and the motives for saving Marshall does not have so much to say as on the supply of labor, but what he does say is to be understood in much the same terms. He states explicitly, "a rise in the rate of interest offered for capital . . . tends to increase the volume of saving. . . . It is nearly a universal rule that a rise in the rate increases the desire to save; and it often increases the power to save."³ Thus he definitely maintains the functional connection between interest and the volume of saving. But he certainly does not hold that the hedonistic desire for future goods is the principal *motive* of saving, any more than primarily hedonistic motives are instrumental in making men work. On the contrary he holds that the motives of saving are very complex and that regard for others and especially family affection play a large part.⁴ To be sure, there is a touch of the old classical notion that interest is mainly a lure

3. Principles, p. 236.

4. "Affection for others is one of the chief motives if not the chief motive of the accumulation of capital." Economics of Industry, p. 39. See also Principles, p. 227. He also admits considerable historical relativity in the motives of saving. "The causes which control accumulation differ widely in different countries and different ages. . . . They depend much on social and religious sanctions." Principles, p. 225.

to saving in the statement "while human nature remains as it is, every fall in that rate (of interest) is likely to cause many more people to save less than to save more than they would otherwise have done."⁵ The weight of his emphasis, however, lies on the fact that saving habits are rather marks of rationality than of hedonistic conduct.⁶

But even this does not explain why the amount of saving should be increased indefinitely with an increasing rate of interest. If an instinct of accumulation be rejected, as it undoubtedly is by Marshall, the explanation must lie in the same fundamental principle of his thought which has appeared so often. One of the qualities which develop with the increasing "firmness of character" involved in a rising standard of life, is that of more vividly realizing the future, and projecting more and more new wants, generated by new activities, into the future. On this basis such a responsiveness to a rise in the rate of interest becomes understandable; tho it is rather the vividness of realizing the future which is decisive in accounting for a greater *responsiveness* of savings to interest. The effect of new future wants would appear to be rather the increase of the total volume of savings, independently of changes in the rate of remuneration.

III

Its close relation to the questions just dealt with will justify a brief inquiry into Marshall's doctrine of real cost. It is clear that in the money sense he holds that value tends to be equal to marginal cost of production and that he extends this doctrine to the production of the factors themselves. Since Marshall believes they are predominantly so governed he is unquestionably committed to the proposition that labor, capital and "business power" receive earnings closely proportioned to their real cost of production.⁷

It has been noted above that his Principle of Substitution gives Marshall an interpretation of real cost consonant with

5. Principles, p. 235. See also Ibid., p. 232 quoted below.

6. Principles, p. 234.

7. "The supply of each agent will be closely governed by its cost of production." Principles, p. 537.

his general utility doctrine — an interpretation which is now usually called "opportunity cost." But this conception applies only to the cost involved in the *use* of any particular agent of production for one purpose to the exclusion of other alternative uses. It has no reference to the cost involved in the production of the resource itself.⁸ But when Marshall speaks of real as distinguished from money costs of production in terms of the "efforts and sacrifices" entailed in the process,⁹ his intense interest in the production of the factors themselves makes it quite certain that he did not limit the meaning of "sacrifices" to this restricted sense, and "efforts" of course could not very well come into the opportunity cost conception at all. What then could he have meant by real cost?

First, as to labor. There have been two chief interpretations of real labor cost: the physiological and the hedonistic. The physiological sense seems to be implied in the more drastic versions of Malthusianism, tho it is modified by the part played by the standard of living. In this sense it is probable that Marshall thought population and hence labor supply to be partly a mechanical function of food supply among the "more ignorant and phlegmatic of races." Moreover it is not only regarding numbers that a "steam engine" theory of the "quantity of labor" is tenable, for individual efficiency may be a function of the standard of living for purely physiological reasons. Marshall states specifically that this factor is one of considerable importance even in the England of his time¹ and certainly in the less advanced countries. Thus he held that physiological causes were by no means negligible as factors in the supply of labor.

On the other hand Marshall often speaks, especially when he has what he calls "conventional necessities" and "habitual comforts" rather than strict necessities in mind, as if the efforts and sacrifices involved in their acquisition were balanced by the pleasure derived from their consumption, so that

8. A difference of opinion is possible respecting what constitute ultimate resources, so that what from one point of view is merely "use" of a resource is from another production of it.

9. Principles, pp. 338-339.

1. Principles, p. 196.

the hedonistic theory gave both an interpretation of why men worked to an extent for which the steam engine theory is not able to account, and of the cost factor which served as a brake on their working beyond a certain point. There are various statements in Marshall which lend plausibility to such an interpretation. For example: labourers are "paid for every hour at a rate sufficient to *compensate* them for the last and most distressing hour."² Such statements are the main basis for the contention that Marshall was a utilitarian hedonist. Yet they cannot account for certain aspects of his treatment of labor cost.

I think it has been satisfactorily proved above that Marshall did not hold consistently to an essentially hedonistic view of the *motivation* to labor. If he did not it would be illogical for him to hold a hedonistic theory of real labor cost. In fact it is difficult to see that, beyond the limits of the physiological sense just discussed, and the hints of a hedonistic interpretation, he could have held that labor was attended by any real cost at all in the sense of effort causing pain, or of a sacrifice which would not otherwise be incurred, — indeed how could he, while saying in the same breath that "work in its best sense, the healthy energetic use of faculties is the aim of life, is life itself."³ What is the aim of life, what is life itself, cannot well be interpreted as a cost which must be incurred in the attainment of ends outside itself.

How then can he make so many statements to the effect that "the money measure of costs corresponds to the real costs" (in terms of effort)?⁴ The confusion seems to come from the identification of two wholly different things under the term real cost. One is simply those factors, whatever they are, which serve as a brake on the supply of an economic good and which must hence, under free enterprise, be balanced by a price. In this sense anyone who goes as far as Marshall does in claiming the functional interdependence of the price and total quantity of the agents of production is

2. Principles, p. 527. Italics mine.

3. Memorials, p. 115.

4. Principles, p. 350.

bound to say that wages of any kind of labor correspond to the real costs of producing it. But when real cost means ultimate sacrifices entailed by that production which are *compensated* by the utility of the product, such a statement has, beyond the scope of the doctrine of opportunity cost, no clear meaning except in hedonistic terms.⁵

But it has already been shown that this responsiveness to "economic causes" which Marshall claims for the quantities of the productive factors is not, in his opinion, due primarily either to physiological or hedonistic causes, particularly in modern western countries, but to the rising standard of life, the development of character and of a level of wants adjusted to activities. "Activities" pursued largely as ends in themselves mean, broadly speaking, an equally rapidly rising standard of efficiency.⁶ This amounts to saying that specifically moral factors play a part in efficiency. It must be concluded that Marshall simply did not think through the implications of this result for a theory of real costs, when that term refers to sacrifices.

The sense in which Marshall would mean the contention that wages form the cost of production of the total labor supply including numbers is analogous. The cost of bearing and rearing children is considered only partly as a "sacrifice." It is, at the same time, one of those "activities" whose development is the aim of social progress.

Much the same finally is true of the sense in which the "waiting" involved in saving is the real cost of production of capital. A definite sacrifice of present consumption is of course involved in saving, but his rejection of the term "abstinence" in favor of the ethically colorless "waiting"

5. Of course any physiological doctrine of real cost is incapable of interpretation in subjective terms such as "sacrifice" in the individual-hedonistic sense. To mean anything it must refer to loss of potential economic resources on the part of the individual or the community.

6. Even physical vigor depends not only on physical conditions but "also on force of will and strength of character." Energy of this kind is "moral rather than physical." Principles, p. 194. "Freedom and hope increase not only man's willingness but also his power for work." Principles, p. 197, n.1.

7. Principles, pp. 232-233.

is indicative of the fact that Marshall is not inclined to take that in too literally hedonistic a sense.⁸ On the other hand frugality is one of the leading traits of character of Marshall's ideal economic man, so that the development of saving habits and a vivid realization of the future lead to increasingly rapid accumulation. Hence, while interest is the cost of production of capital in the sense that the supply varies with the rate, it can hardly be said that Marshall seriously held that this rate measured the sacrifice⁹ involved in waiting, since waiting is in large measure a by-product of qualities of character prized for their own sake.

IV

The keynote of Marshall's description and analysis of the modern economic order is what he called "free industry and enterprise."¹ Its development is for him the central problem of at least modern, if not all economic history,² and the understanding of its workings, results and conditions of existence and efficiency is the main task of his economic analysis.

It is a system characterized by the predominance of rather small competing firms, each under the guidance of an enterprising and resourceful business man, who at his own risk continually experiments with various combinations of the productive factors. For the sluggishness and passive adherence to tradition of a custom-bound society, it substitutes rational

8. "The greatest accumulators of wealth are very rich persons, some of whom live in luxury, and certainly do not practice abstinence in that sense of the term in which it is convertible with abstemiousness." *Principles*, p. 233.

9. But he does say interest is the *reward* of waiting. "Human nature being what it is we are justified in speaking of the interest on capital as the reward of the sacrifice involved in waiting for the enjoyment of material resources because few people would save much without reward." *Principles*, p. 232. This passage seems to have so definitely hedonistic a connotation that it must again be concluded that Marshall did not satisfactorily think through what he meant by real cost of waiting. But even here the emphasis is on *responsiveness* of supply rather than sacrifice.

1. The late Professor Allyn Young (*Quarterly Journal of Economics*, November, 1927) called attention to the specifically Marshallian nature of this conception in contrast to the Marxian idea of capitalism.

2. See especially *Principles*, Appendix A and *Industry and Trade*.

experimentation with new methods. On the other hand its flexibility and freedom are contrasted sharply with the rigidity of bureaucratic organizations,³ whether public or private. This latter type, the opposite of free enterprise, Marshall found exemplified both in Mercantilist monopoly and regulation and in modern tendencies to very large scale business, government control, and socialism.⁴

To be sure he saw a great many defects in unmitigated economic freedom, particularly in relation to the position of the working classes. His conception of the rôle of the state was by no means wholly negative.⁵ But nevertheless he was definitely and strongly a believer in individual freedom. He had no regrets that custom has lost its sway and was severely critical of the bureaucratic methods of large joint-stock companies, to say nothing of government enterprise.⁶ The *prima facie* case was definitely against any further extension of the economic functions of the state.⁷ Socialism he considered the most serious threat to well-being in his day.⁸

At the same time Marshall's free enterprise is by no means an unmitigated struggle for existence — a Hobbesian state of nature. It is throughout closely bound by ethical norms. Again and again he reiterates that only the great improve-

3. "If he (the business man) is working at his own risk, he can put forth his energies with perfect freedom. But if he is a servant of a bureaucracy he cannot be certain of freedom." Memorials, p. 333.

4. See especially large parts of *Industry and Trade*, and in the Memorials, "Water as an Element of National Wealth," "Some Aspects of Competition" and "Social Possibilities of Economic Chivalry."

5. See *Official Papers*, p. 336; *Industry and Trade*, p. 647.

6. "Government creates scarcely anything." Memorials, p. 338. "We secure, so far as the influence of the Post Office reaches, most of the evils of Socialism with but few of its benefits." Letter to the *London Times*, March 24, 1891.

7. "Every new extension of Governmental work in branches of production needing ceaseless creation and initiative is to be regarded as *prima facie* anti-social." Memorials, p. 339.

8. "I regard the socialistic movement as not merely a danger but by far the greatest present danger to human well-being." In a letter written in 1909. Memorials, p. 462. There is now "a broader and firmer foundation for socialistic schemes than existed when Mill wrote. But no socialistic scheme yet advanced seems to make adequate provision for the maintenance of high enterprise and individual strength of character." Preface to *Industry and Trade*, p. viii.

ment in character and morality of recent times had made economic development possible.⁹ But while to some extent, this moral advance facilitates an extension of governmental functions to a larger extent it tends to render them unnecessary and to make a system of economic freedom workable with a minimum of regulation.

It is important to note also that Marshall's strictures on large-scale organization applied to private as well as state enterprise, tho in less degree. They all tend inevitably to routine and lack of enterprise. It is significant that he ascribed the failure of monopoly to engross whole industries not so much to limits in the technical economies of large-scale production and organization as to the fact that no firm had time to reach the size necessary for monopolistic domination before the process of decay sets in and proceeds so far as to force it to give way to a new firm.¹

The main grounds for Marshall's general adherence to the policy of *laissez faire* are twofold. The first lies in a broad deduction from his utility theory, which is generally stated in the form of the Doctrine of Maximum Satisfaction. It is true that Marshall makes some far-reaching criticisms of the doctrine, noting its inconsistency with the inequality of wealth² and, in particular, proving that free competition

9. "Uprightness and mutual confidence are necessary conditions for the growth of wealth." *Economics of Industry*, p. 11. The great increase in the size of businesses "would have been impossible had there not been a great improvement in the morality and uprightness of the average man." *Memorials*, p. 307. See also *Principles*, p. 7; *Industry and Trade*, p. 165.

1. *Industry and Trade*, pp. 315-316; also p. 422. At the same time Marshall had a certain tendency to minimize the importance of the combination movement. Speaking of combinations, both of employers and employed, he says, "They present a succession of picturesque incidents — but (their importance) is apt to be exaggerated; for indeed many of them are little more than eddies such as have always fluttered over the surface of progress — now as ever the main body of movement depends on the deep, silent, strong stream . . . of normal distribution and exchange." *Principles*, p. 628. "Normal" in this context seems obviously to mean "competitive."

2. *Principles*, p. 471. He apparently thought that difficulty was becoming less serious: "The main drift of this study of Distribution then suggests that the social and economic forces already at work are changing the distribution of wealth for the better." *Principles*, p. 712.

results in overinvestment in industries tending to increasing cost, and underinvestment in those tending to a decreasing cost.³ But with these qualifications he holds it to be a valid doctrine on the assumptions given above as underlying his utility theory as a whole. Moreover, it is significant that he states the doctrine in individualistic terms,⁴ without even considering whether it would apply to a collectivist state where the whole process of production and allocation of resources was in the hands of a single centralized body working in the general interests. The omission is surely indicative of a laissez-faire bias.

The Doctrine of Maximum Satisfaction was certainly for Marshall more than a somewhat dubious by-product of highly abstract theoretical speculation. He consistently refused to be led into abstract reasoning which he did not think had any practical application. Indeed on any other assumption than that the doctrine represents for him a broadly valid generalization of the main tendencies of competitive society, his very acceptance of it is incomprehensible.

But its significance in his scheme of thought is more clearly seen in terms of the closely related Principle of Substitution, which may be considered on the whole a more limited and less drastic statement of the same principle. There are numerous passages showing that he thought the Principle of Substitution led to the working out of optimum combinations of resources under free enterprise.⁵ The basic reason for his

3. Principles, Book V, Chapter XIII.

4. Principles, p. 502.

5. See Principles, pp. 341, 355-356, 405-406, 597. But even though his faith in the working of the principle of substitution under free enterprise is far-reaching, that alone does not justify the conclusion that he held that free enterprise approximated to the general optimum condition contemplated by the Doctrine of Maximum Satisfaction. For the principle deals immediately with the adjustments arrived at by individual entrepreneurs and is hence limited by the resources available to them. It would be quite possible for every entrepreneur to reach such an optimum adjustment under the conditions he had to face and the whole system yet not be at a maximum of satisfaction. The discrepancy would be due to the existence of serious obstacles to the mobility of resources. They cannot be due to lack of rationality of individual behavior since that is implied in the principle of substitution.

belief in the working out of these two principles under modern conditions is his general faith in the growing rationality of mankind. Given the overwhelming evidence that he held such a view, it is hardly surprising that he should be able to accept the two principles as substantially true of a late stage in social development.

The question at issue on this side of the problem of *laissez faire* is its efficiency. Taking satisfaction of consumers' wants as the only possible standard of efficiency, it appears that a system of *laissez faire* can, under certain assumptions, be an efficient system of organization. Moreover it happens that most of these assumptions were for Marshall far more than a set of methodological abstractions, but represented to a great extent actual descriptions of free enterprise, or of the condition toward which he thought it to be tending. This is unquestionably true of three of the four main assumptions listed above; competition, mobility and rationality, all of which he thought to be characteristic of free enterprise as distinct from other systems.

The main doubts as to whether this is the sole principal ground of his adherence to *laissez faire* arise in connection with the other main assumption, the fixity of wants. This, it has been shown, he definitely repudiates, and repudiates in the interest of the influence of activities as ends in themselves. And closer examination reveals the fact that the activities and qualities of character which Marshall prizes so highly are everywhere associated with free enterprises, while their opposites — sluggishness and stagnation, on the one hand, ostentation and luxury, on the other — are invariably associated with conditions other than free enterprise, or at least, if appearing in the same society, do not properly belong to it. In fact, tho he of course believed that free enterprise was an

Since Marshall had no very strong doubts of the mobility of capital there remains that of labor, where the most serious question is that of "non-competing groups." Though Marshall's opinion on that issue is obscure its general drift seems to be that whatever importance they have had is diminishing and that free enterprise, aided by compulsory education, has a strong tendency to break down such barriers. See *Principles*, pp. 217, 310, 661; *Economics of Industry*, p. 47; *Industry and Trade*, pp. 4-5.

efficient system of organization, his peans of praise of the business man who combined bold initiative and enterprise with industry, frugality and general "firmness of character" are so impressive as to leave a legitimate doubt whether he would not have favored a system which bred such characters even at the cost of a considerable loss of efficiency. His praise of Athens as against Sparta and Rome, and of the modern sea powers like England against land powers like France and Germany supports this suggestion.⁶ But with characteristic Victorian optimism he in general held that the two aspects went hand in hand, that the interests of efficiency were not opposed to those of individual character and culture. Conversely socialism, and less drastic measures of government interference with economic freedom, meant to him both inefficiency in our special sense and sapping of the springs of enterprise through the degradation of character.⁷ Nevertheless, even tho the two motives work in the same direction, it is important that they should be distinguished and their quite separate sources brought out.

V

After the above only a brief discussion need be devoted to Marshall's doctrine of social evolution. It is evident that he had one, as is indeed only natural in a man whose thought was being formed at the time when Darwinian ideas were beginning to make a deep impression in England. The doctrine Marshall holds is essentially unilinear, in spite of the fact that he did not think it was absolutely continuous and unbroken, or inevitable.⁸ There is no sign of an essentially cyclical conception of social change, nor of change by a dialectic process, nor, finally, of the idea that social development resembles the growth of a branching tree.

6. See *Water as an Element of National Wealth*, Memorials, pp. 134ff.

7. "I think the chief dangers of socialism lie not in its tendency towards a more equal distribution of income for I can see no harm in that, but in the sterilizing influence on those mental activities which have gradually raised the world from barbarism." Letter to London Times, March 24, 1891.

8. Memorials, p. 305.

Within the general framework of this continuous unilinear process can be identified two main elements corresponding directly to the two factors in his thought which have been traced throughout this study. As has already been noted, a leading assumption of Marshall's utility economics is rationality of behavior in the adaptation of means to ends. But the rather far-reaching rationality which characterizes his picture of free enterprise, has not always existed; it has come only with a long process of evolution, resulting in a gradual widening of the scope and power of rational behavior. In common with many ethnologists of his time Marshall conceived the state of primitive man (in the sense not merely of contemporary peoples called primitive but of the original state of our own ancestors) to be one of slavish devotion to custom⁹ and adherence to a compulsory uniformity of behavior.¹ The process of emancipation from custom² is one of the gradual differentiation of functions and the growing independence of individual action according to objectively rational³ norms. A reverse process takes place, to be sure, in the form of the crystallization of rational ways of doing things into custom and tradition.⁴ But while this reverse process with its stabilizing effect on social life is recognized there is no doubt that that of emancipation is more fundamental, so that for him evolution consists in the progressive approximation to action

9. "In primitive times and backward countries the sway of custom is more undisputed." *Principles*, p. 640.

1. Savage tribes "show a strange uniformity of general character . . . living under the dominion of custom and impulse." *Principles*, App. A, p. 723.

2. Custom is not necessarily ultimate; deeper factors are hinted at: "The greater part of custom is doubtless but a crystallized form of oppression and suppression" tho "every body of custom that endures contains provisions that protect the weak from the most reckless forms of injury." And further "This force of custom in early civilizations is partly a cause and partly a consequence of the limitations of individual rights in property." *Principles*, App. A, pp. 725-726.

3. The "business point of view" could not have been understood in a primitive society. It is "merely one drift of the tendency to adapt means to ends." *Industry and Trade*, p. 163.

4. Thus the case for Marshall is not wholly against custom: "the solidity of custom has rendered the supreme service of perpetuating any such change as found general approval." *Industry and Trade*, p. 197.

according to the principle of substitution, *i.e.* to economically rational action.⁵

- X In these terms economic history becomes for Marshall essentially the history of the development of free enterprise. In fact the only explicitly historical chapter in his *Principles* (Appendix A) is entitled "The Growth of Free Industry and Enterprise." With all the set-backs the process is conceived as in principle continuous,⁶ and the things which really need explanation are not the specific forms of behavior and organization but the removal of barriers and the development of certain arrangements facilitating exchange, communications, etc., such as money and credit, which are generally themselves included in the developing rationality. This is on the whole the orthodox Anglo-Saxon view of economic history: the barriers must be removed, but once they are removed, modern capitalism — or free enterprise — becomes established of itself. It needs no specific propelling force — and if it consists merely in rational conduct, why should it?

In the passage quoted above about the great truth upon which Ricardo and his followers dwelt, Marshall gives the clue to the second principal aspect of his idea of social evolution. To repeat, he asserts that "While wants are the rulers of life among the lower animals, it is to changes in the forms of efforts and activities that we must turn when in search for keynotes of the history of mankind."⁷ This might be understood merely to assert a difference between animals and man, but, evolutionist as Marshall is, he clearly means more: that there is a process of development from the former to the latter state. Later on, he says specifically, "Speaking broadly, therefore, altho it is man's wants in the earliest

5. "Emancipation from custom and the growth of free activity — have given a new precision and new prominence to the causes that govern the relative value of different things . . ." *Principles*, p. 5. Also, "Time is on the side of the more economic methods of production." *Principles*, p. 398.

6. See App. A. Note his treatment of Mercantilism. While he admits the rise of the absolute state meant the imposition of new restrictions on enterprise, he still claims that it removed more barriers than it created and thus the process of emancipation was continuous.

7. *Principles*, p. 85.

stages of his development that give rise to his activities, yet afterwards each new step upwards is to be regarded as the development of new activities giving rise to new wants, rather than of new wants giving rise to new activities."⁸

Thus along with the development of reason goes a second evolutionary process, the development of new activities, of a rising standard of life. From this point of view the process of evolution leads to the same goal as before, free enterprise, because the higher activities are those which are fostered by such a system, where the energy and enterprise of modern western culture is set over against the sluggishness and stagnation of former times. Of the latter type of activities there are two sorts — the primeval stagnation of a custom-bound⁹ society and the comfortable uninspired routine of a government department or any very large organization. Thus Marshall conceives socialism and some aspects of large scale organization as backward steps in evolution. This, it is readily seen, is a very different aspect of the genesis of free enterprise from the growth of rationality. So far as the interest is merely in want-satisfaction the types of activities which lead to that result are essentially indifferent, so long as they are efficient. If collective organization is more efficient in this sense there is no reason why it should not be preferred. But if it destroys the activities and character in which Marshall believed so strongly, and which he thought were fostered by free enterprise, its "mere" efficiency becomes far less important.

But this second element in Marshall's idea of social evolution, however distinct logically, is in his own mind intimately bound up with the progress of reason. In a sense the rise in the standard of life is itself a process of rationalization. Marshall would certainly say that the modern man was more rational than the primitive creature of "wants" or of custom. But it is equally clear that it cannot be simply identical with the progress of reason in a sense to which all men would

8. *Principles*, p. 89.

9. Thus custom forms the principal characteristic of the primitive from both points of view. Adherence to it is both irrational and an indication of "sluggishness."

assent. Why is idle "stagnation" unreasonable; why are some wants "artificial," others natural? Evidently because of Marshall's belief in an absolute goal of evolution, the development of character in his peculiar sense. It is really the central factor; around it as a nucleus cluster the actual economic wants, and to it is adapted the external and social environment within the limits permitted by physical conditions.¹ Basically the selective process of business competition and the rational combination of resources derive their significance from their service to this end. This it is which enables him to speak of a "higher and nobler" life at all.

And it is fundamentally because he assumes these activities to be ends in themselves that he is an adherent of the unilinear concept of social evolution. At the basis of his economic thought lies a metaphysical postulate.²

VI

From what has already been said in various connections it is evident that Marshall considered the Principles of Maximum Satisfaction and of Substitution to confirm on the whole the desirability of free enterprise. Moreover he goes considerably further than the more limited versions of the doctrines, which would have to do only with an optimum satisfaction of wants by means of given resources. It has been shown that the quantity of economic resources, except of course natural agents, varies for him primarily with "economic causes," *i.e.* immediately with the price offered for their use. Does he go still further and claim that, at least under free enterprise, there is a tendency to the automatic pro-

1. It is significant that Marshall does not go far in attributing direct importance to factors of external environment in general. He says for instance (*Industry and Trade*, p. 158) that the United States owes less to her resources than to the exceptional force of character of her people. (See also *Money, Credit and Commerce*, p. 5.) There are, however, numerous statements about the debilitating effects of hot climates, which are understandable when we consider the enormous importance he attributed to energetic activity.

2. The sociological significance of this belief and the relation of Marshall's doctrine of social evolution to those of others cannot be entered into here.

duction of optimum quantities of labor and capital? This step is of course the one to a "natural order," in which the *whole* socio-economic equilibrium is determined in a way beneficent to mankind.

The clearest case is that of the amount of labor performed by a single laborer. Here there are very strong suggestions in Marshall that free enterprise does produce something very much like an optimum. Activity under such a system is continually contrasted with the sluggishness and stagnation of other societies. While there are suggestions that in some cases free enterprise tends to overwork labor, this ill effect is almost always attributed to the social environment in which it has developed, and Marshall thinks there is a strong tendency for such abuses to disappear with the removal of social factors not in harmony with free enterprise.³ So, tho Marshall never committed himself definitely, there is a strong case for believing he thought free enterprise produced an optimum of effort.

What is his attitude toward the question of numbers? One negative conclusion is certain: while he believed in a form of the Malthusian doctrine for former times and for "backward countries," he certainly thought that free enterprise had broken the vicious circle. Population under free enterprise would then be more nearly at an optimum. But would it actually tend toward such an optimum? So far as I know Marshall gives no answer. It is noteworthy that he never attempted to define the concept of an optimum of population, nor to measure how close actual populations came to such a standard; a task which was beginning to attract considerable attention on the part of economists in the last years of his life. While Marshall does not deny the proposition, neither does he affirm it. But there is little doubt that he felt free enterprise came nearer attaining such an optimum than any alternative.

Regarding saving, a similar negative conclusion seems justified; the more vivid realization of the future under free enterprise leads to a better situation in this respect. In fact there

3. Principles, p. 748; Industry and Trade, pp. 72-73.

is no hint that such a thing as too much saving is possible. On the whole, therefore, it would seem that free enterprise accomplished something nearer an optimum of savings than any other system. There are clear statements that one of the great dangers of socialism lies in its probable reduction in the volume of accumulation. The evidence from this aspect of Marshall's thought again points strongly in the direction of his belief in a "natural order,"⁴ even tho it does not positively establish it.

But serious doubts are thrown on this interpretation from the other side. An optimum is essentially a static concept; it is an optimum adjustment to certain fixed factors. For society those factors must be either the external environment alone, or that plus certain given wants.⁵ But Marshall holds neither of these. In particular he refuses to take wants as given; his central doctrine is that of a progressive growth of wants generated by new activities. From this point of view the strong tendencies toward belief in an optimum adjustment could refer only to each stage in the development of wants adjusted to activities.

Whether Marshall believed in a natural order in any more than this relative sense depends on whether he conceived the whole process to be moving toward any fixed goal. Here again there are suggestions.⁶ Certainly the general direction is fixed as is the main outline of the types of character he thought he saw developing. But within these limitations it seems fair to say that he thought of the process as endless.

4. "In a stationary state the income earned by every appliance of production . . . would represent the normal measure of the efforts and sacrifices required to call it into existence." *Principles*, App. H, p. 810.

5. Which may or may not be considered as expressing general traits of "human nature."

6. He says (*Principles*, pp. 246-247) "This doctrine of natural organization (*laissez faire*) contains more truth of the highest importance to humanity than almost any other." But in its classical form it "hindered them from inquiring whether many even of the broader features of modern industry might not be transitional," and finally it "forgot that man delights in the use of his faculties for their own sake." The last statement is typical of his attitude against a *laissez-faire* philosophy based on the Doctrine of Maximum Satisfaction alone.

This probability is strengthened by a striking disagreement of Marshall with his eminent predecessor, John Stuart Mill. In Mill's famous chapter on the stationary state occurs the well-known passage: "I am inclined to believe that it (the stationary state) would be, on the whole, a very considerable improvement on our present condition. I confess I am not charmed with the ideal of life held out by those who think that the normal state of human beings is that of struggling to get on; that the trampling, crushing, elbowing and treading on each other's heels, which form the existing type of social life are the most desirable lot of human kind or are anything but the disagreeable symptoms . . . of industrial progress."⁷ On the other hand we find Marshall saying: "But indeed a perfect adjustment is inconceivable. Perhaps even it is undesirable. For after all man is the end⁸ of production; and perfectly stable business would be likely to produce men who were little better than machines."⁹ Need anything further be said to bring out the difference between Marshall and those holding an essentially static ideal?¹

VII

It only remains to discuss very briefly the view of human nature implied in Marshall's attitude to all these problems. This may be accomplished in terms of his attitude to the old doctrine of the economic man. This creature has generally been endowed with two leading qualities: egoism and rationality. On the one hand, he has been thought of as engaged solely in the pursuit of his own self-interest; on the other, as acting rationally in the attainment of that interest. The two attributes have commonly been linked together, tho it may be doubted whether they are not perfectly separable. If man be conceived as acting rationally to satisfy his wants whatever they are, the question whether those wants are wholly egoistic or include altruistic desires is irrelevant to the under-

7. Mill, *Principles of Political Economy*, p. 748, Ashley's Edition.

8. This of course does not mean the satisfaction of man's *wants* is the end of production but rather the development of his character.

9. *Industry and Trade*, p. 195.

1. The ideal of Utilitarianism is of course static.

standing of the behavior issuing from them. But there is no doubt of the historical association of the two elements.

Again, much controversy has raged as to whether the economic man is a concrete reality or merely a methodological tool. On this point there is no doubt of Marshall's attitude. He expressly repudiates any abstract methodological assumption of an economic man of any sort. He asserts quite emphatically that he is talking about real people as they actually act in the business of everyday life.² Moreover it is equally clear that he did not consider the actual men with whom he dealt to be unmitigated egoists.³ Scattered throughout his work are references to a large number of non-egoistic motives,⁴ which is perhaps sufficient proof that he did not consider man an egoist. But his evolutionary doctrine furnishes even more convincing evidence. On the one hand social evolution, especially in the development of free enterprise, is marked by the increasing influence of "economic causes." But far from this being accompanied by increasing egoism, precisely the contrary is the case.⁵ As men's "mental horizon" becomes wider they become more responsive to appeals to motives other than self-interest; the claims of family, municipality, the oppressed classes, their country, humanity and morality.⁶ He placed great hopes in the devel-

2. "— in every respect economics takes man just as he is in ordinary life." *Principles*, p. 20.

3. "Whenever we get a glimpse of the economic man he is not selfish." *Memorials*, p. 160. "The motives which induce business men to compete are not altogether sordid." *Memorials*, p. 281.

4. "The economists of today go beyond those of earlier generations in believing that the desire of men for the approval of their own conscience and for the esteem of others is an economic force of the first order of importance." *Memorials*, p. 285.

5. The records of history do not support the doctrine that man is "harder and harsher than he was." *Principles*, p. 6. He speaks (*Principles*, p. 303) of "the marvelous growth in recent times of a spirit of honesty and uprightness in commercial matters."

6. As compared with the seventeenth century, man "has acquired an increasing power of realizing the future — he is more prudent and has more self-control — he is more unselfish — and there are already signs of a brighter time to come, in which there will be a general willingness to work and save in order to increase the stores of public wealth." *Principles*, p. 680.

opment of "economic chivalry."⁷ The widening scope of altruism is one principal element in the "strengthening of character." To be sure the limitations of human nature are not infrequently invoked against proposals of social reform; but the significant thing is that he thought those limitations were being progressively removed at the same time that economic causes were widening their dominion. Hence it is quite out of the question that Marshall held egoism to be the most essential, or even a necessary element in "economic" motivation.⁸

Respecting the rationality of economic behavior on the other hand, the answer is quite different. The Doctrine of Maximum Satisfaction and the Principle of Substitution are based on that rationality, and Marshall goes a long way in the direction of ascribing objective reality to them. Moreover the principal exceptions to them are not based on any doubts about rationality — except one class, custom, which he thought to be declining in importance. Most of the others are due to obstacles placed in the way by people who may well be "unreasonable" but are by no means irrational. A principal aspect of the process of social evolution is for Marshall the emancipation from all such irrationalities. So it may be said without hesitation that he held that human action was on the whole decidedly rational and was growing steadily more so. In this sense the economic man was for Marshall substantially the real man.⁹

It is equally clear on the other hand that this is not the whole of his doctrine.¹ If rationality were the sole guiding

7. See the essay, *Social Possibilities of Economic Chivalry*, *Memorials*, pp. 323 ff.

8. When he says, "... the steadiest motive to ordinary business work is the desire for the pay which is the material reward of work" (*Principles*, p. 14) it must be understood to refer only to the immediate, not the ultimate motive.

9. "It is deliberateness, not selfishness that is the characteristic of the modern age." *Principles*, p. 6.

1. Keynes (*Memorials*, p. 9) says, "It would be true, I suppose, to say that Marshall never departed explicitly from the utilitarian ideas which dominated the generation of economists who preceded him. But the solution of economic problems was for Marshall, not an application of the hedonistic calculus, but a prior condition of the exercise of man's

principle of social action, the ends of that action would have to be objectively given. But the only ends which can be objective in a purely scientific sense are biological survival and actually felt desire.² Marshall certainly does not reduce social evolution to biological survival; and hedonistic motivation is by no means predominant, while in so far as it exists its egoistic elements tend to disappear.

In fact Marshall's idea of human behavior is largely dominated by the other element so often emphasized in this discussion; the development of "firmness of character" of higher activities, of faculties involving bold enterprise, industry, frugality and the rest. This aspect of human nature is much more important than self-interest, and even more so than rationality, tho it is for Marshall scarcely separable from the latter. The two are inextricably interwoven to form a single whole of "progressive human character";³ tho indeed it is primarily this, not the rationality, which makes the development of character progressive. To be sure the development of character and activities forms the non-rational basis of economic rationality in the narrower sense; it forms the source of the "higher" wants which cannot themselves be criticized merely in rational terms. But at the same time the activities themselves are carried on rationally. In fact the whole process of social development leads to a "rationalization" of the life of the individual, in the sense that his life as a whole is given an inner consistency and purposefulness wanting in the slave of custom or the creature of "artificial wants." From a hedonistic point of view it is in a certain sense an "ascetic" rationality. Rather than acting in the service of "natural" desires, it subdues and disciplines them. It is only in terms of this peculiar combination that higher faculties, irrespective, almost, of what we mean by 'higher.'" But Marshall knew very well what *he* meant by "higher." Moreover the study of economics was for him not merely that of a "condition" of that exercise but a study of the actual development of such faculties and their exercise.

2. The reasons for this statement cannot be entered into here.

3. A phrase Marshall often uses. It is quite clear he did not consider human nature to be constant.

Marshall's espousal of free enterprise, indeed his economic doctrine as a whole, can be understood.⁴

The main results of the present study may be formulated somewhat as follows: Marshall's economic teaching as presented above all in the *Principles*, but also in other writings, is made up mainly of two strands of thought which are logically separate but which he fuses together in his economics, conceived as the study of mankind in the ordinary business of life. One of the strands is the "study of wealth" or what has here been called "utility theory," the center of which is a study of the rational process of the satisfaction of given individual wants mainly under the conditions of free competition. The other is the "study of man," of the formation of his character through economic activities, not in general but in terms of the process of development of the types of character and activities which Marshall found to be most conspicuously associated with the system of free enterprise.

Since the first strand is that to which most attention has been paid and which is most closely connected with the development of "orthodox" economic theory, my main task has been to unravel the second strand from it and to show the part it has played in determining Marshall's attitude toward a whole succession of problems. I believe that an understand-

4. It is evident that I cannot agree with those writers who throw Marshall and the classical economists together as hedonists and find in this sufficient cause for dismissing them as inadequate on account of the falsity of their psychological assumptions. Thus Professor Mitchell says: "The fact remains that the ultimate terms in Marshall's account of economic activity are pleasures and pains —" (*Journal of Political Economy*, Vol. 18, p. 111). Again, "— he (Marshall) uses money primarily as the objective measure of human motives (which is true) and then goes below money to the bedrock of hedonism" (which is quite a different thing). *Ibid.*, p. 207. Also Professor Homan (*Contemporary Economic Thought*, p. 236) says of Marshall: "The motives he considers are very simple and distinctly hedonistic. He only succeeded in avoiding the ethics of hedonism, not its theory of human motivation." But if he was a hedonist how could he have objected so strenuously to Jevons' version of utility theory? The fact is, as should now be abundantly evident, that Marshall was not primarily a hedonist, and the ultimate terms in his account of economic activities are not pleasures and pains.

ing of this side of his thinking is vital to the understanding of his position on the labor theory of value, on the fixity of wants, on the supplies of the factors of production, on *laissez faire*, on social evolution, and finally on human nature.

Marshall's particular version of the one-at-a-time method makes the task of unravelment extraordinarily difficult, because he always refuses to define precisely the field of his investigation as a whole, and to work out his leading ideas to their ultimate logical consequences. On the contrary, he prefers to take up all of what he considers the important aspects of each particular concrete problem as he comes to it, without following out the implications beyond the particular problem. The result is a lack of clarity as to what his position really is on a number of vital questions, which leads to a particularly insidious form of the "fallacy of misplaced concreteness."⁵

Any more definite criticism of Marshall's doctrines would exceed the scope of the present study. This has been concerned solely with analyzing the structure of his economic thought in order to determine what its constituent elements are; and in conclusion it should be emphasized again that the result is the finding of two leading *theoretical* elements in Marshall's work. Utility theory is generally conceded to be abstract; but "evolutionary" theory is often supposed, quite erroneously, to be endowed with some mystical quality of concreteness. While it is true that Marshall's theory as a whole is more concrete than the utility aspect of it alone, that is simply because it includes other factors; it still remains a theory in both its aspects. Whether Marshall's addition of the "activities" element brings utility theory more into accord with the facts is another question, which can only be dealt with in a wider context.

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5. See Whitehead, *Science and the Modern World*.

THE UNITED STATES COPPER INDUSTRY AND THE TARIFF

SUMMARY

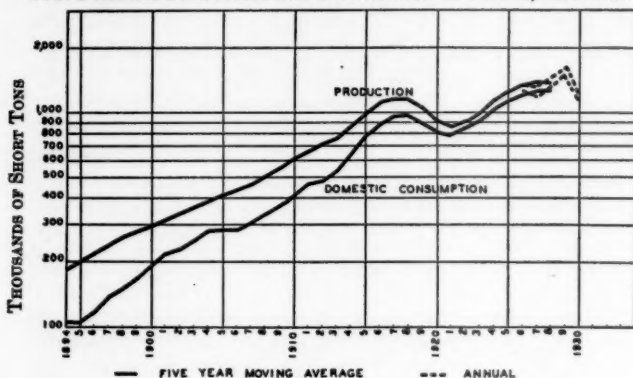
United States copper consumption increasing at a faster rate than production but not yet in excess of the latter, 142. — Apparent excess of consumption in 1930 due to decline in exports, 143. — Copper Exporters, Inc., organized in 1926, to regulate the foreign marketing of our copper, 145. — The Copper Institute, a trade association, formed in 1927, 146. — Prices rose to peak in April, 1929, were pegged at eighteen cents for a year, and fell below ten cents in October, 1930, 148. — Output restriction announced in November, 148. — Large potential new mine supply in next five years, 149. — Short-run outlook not bright, 151. — Long-run position sound, indicated by calculation of probable world demand in 1940 for primary copper, 152. — Conclusions as to future price, 154. — A tariff today would not help the industry, might in ten years, 155. — Real need is lower tariffs for United States and world, 156.

The recent fall in the price of copper has revived agitation for a duty on that commodity. When disaster overtakes an entire industry, the producers usually seek to lay the blame on some external cause. If their article is one likewise produced in foreign countries, it is the normal reaction for the people of a protectionist country to ask for a new or higher tariff rate.

It is an axiom of economics that if an article is produced within a country, under competitive conditions, in excess of the consumption of that country, a tariff is futile. The price will not be raised because a duty cannot restrict the supply in a market already saturated. To gauge the effect of a duty on copper, the copper industry of the United States must first be examined with regard to domestic production and domestic consumption.

A glance at the accompanying chart will show that while the consumption of copper in the United States is increasing more rapidly than domestic production, it has not yet exceeded the output. From 1894 to 1928 the rate of increase

U. S. DOMESTIC PRODUCTION AND CONSUMPTION OF COPPER, 1894-1930



of consumption has been 7.6 per cent per year as compared with only 6.1 per cent for production. If we compare the post-war years, however, we find both these elements increasing at approximately the same rate, 7.1 per cent for the former and 6.9 per cent for the latter during the years 1923 to 1928 inclusive.¹ The consumption of copper in the United States may therefore be expected to increase for a decade or two at an average annual rate of increase of about 7 per cent. Some allowance should be made, of course, for the decrease in the rate of growth of our population. If we calculate on this basis, our copper consumption in 1940 will be almost 2,900,000 tons as compared with the moving average figure of 1,285,000 tons in 1928. As regards production, the rate of increase is far less susceptible to prediction. Starting from 1,382,000 tons in 1928, the total production of copper in this country would have to show a 6.4 per cent secular rate of increase to equal the assumed consumption in 1940. This figure should be compared with the 6.9 per cent rate from

1. The detailed figures on which the chart is based are given in the table at the close of this article. Five period moving averages have been used to reduce cyclical and seasonal variations.

1923 to 1928 which, however, is swollen by considerable cyclical effect. The lower rate of 6.1 per cent, from 1894 to 1928, is more indicative of secular possibilities.

It may be regarded as probable, therefore, that some day, be it in ten years or twenty, the consumption of the United States will outrun its capacity to produce. When that time comes, the propaganda for a copper tariff will certainly be renewed with increased vigor, for there will then be an actual opportunity to raise the price within the protected area. The probable effect of such a tariff upon the industry will be discussed later, but it should be pointed out at once that the price of copper will have a large bearing upon the rate of exhaustion of our ore reserves. If the world price remains twelve cents or less for the next decade, our copper deposits will not be exhausted as quickly as if increased world consumption should tax existing capacity to the point of raising the price to a sixteen or eighteen-cent level. It has been pointed out by mining engineers that six of the twelve major districts of the United States seem clearly on the down grade. In ten years, three or four more will have passed the peak; and there is no additional district of the first magnitude in sight.² Even tho statistics are presented to show that our porphyry mines reveal continued increases in reserves, these are generally of a lower grade and will be more costly to extract. If prices become high enough to warrant operating at maximum capacity, present porphyry reserves are sufficient to last only twenty-five years more.³

One of the chief reasons for the present discussion of a copper tariff is the fact that in the last half of 1929 and the first half of 1930 imports of copper into the United States, for the first time in more than forty years, exceeded the exports. Many concluded at once that our consumption had outrun our production. The error lay in neglecting the increase in stocks; it was this which absorbed the excess of imports, not

2. Cf. L. C. Graton, "Economic Aspects of the Copper Industry," *Engineering and Mining Journal*, 129:192-194, Feb. 24, 1930.

3. "United States Porphyry Mines Still Increasing Reserves," by S. D. Strauss, *Metal and Mineral Markets*, June 26, 1930, p. 5.

our industries. While we did have an import balance, it was not due to the inability of domestic production to keep pace with the demands of our fabricators. On the contrary it was the decrease in exports which created the import surplus. Foreign demand declined under the dual pressure of business depression and artificially high prices for the red metal — factors which will be considered presently. Prices were maintained considerably above normal from January, 1928, to March, 1930. Foreign buying fell off and exports reacted downward almost immediately, but imports did not decline till August, 1929. It was this lag which caused the import surplus. As foreign consumption picks up under the stimulus of the present low prices, we may expect exports to resume their normal margin above imports. The experience of 1930 seems to have been merely a temporary incident. Yet it does portend the day when, from the action of other and more basic causes, the United States shall have a continuing import surplus.

An interesting sidelight upon the argument that an import surplus proves the inadequacy of copper production to meet the internal demands of this country is the fact that once before, in 1921, our production fell to the point where it was just equal to our consumption. In 1922 the two were again practically the same, but in both years the exports exceeded the imports, and therefore little attention was paid to the statistical equality of production and consumption.⁴ In the present case imports have actually been greater than exports, but production has not fallen below domestic consumption.

4. In the post-war depression the margin between production and consumption was wiped out due to low world price and large overhanging stocks. This led to a decline in mine output more rapid than the drop in industrial demand. The following table shows the trend:

EXCESS OF UNITED STATES PRODUCTION OVER CONSUMPTION,
1910-1930, IN THOUSANDS OF SHORT TONS

1910 — 170	1915 — 172	1920 — 65	1925 — 140
1911 — 210	1916 — 217	1921 — 0	1926 — 81
1912 — 224	1917 — 245	1922 — 4	1927 — 148
1913 — 212	1918 — 110	1923 — 82	1928 — 92
1914 — 295	1919 — 260	1924 — 160	1929 — 102
			1930 — 63

The recovery and prosperity which followed the post-war depression found production resuming its leadership over consumption. In a similar fashion we may expect exports again to exceed imports in the years immediately ahead.

In keeping with the erroneous conclusion that the present price depression in the United States is due to a flood of foreign copper and could have been prevented if we had had a tariff, there has been a specific indictment against such foreign sources as South America and Africa, where there is supposed to be a special production advantage through the use of slave or cheap native labor. Relative to the change in our own mine production, however, imports from the regions named are not so dangerous. Canada alone, among foreign countries, sent us more copper in 1930 than in 1929 and 1928. Further, the total production by American owned properties in Chile and Peru declined more in 1930 than did the output of mines in our own country.

To understand the copper situation one must appreciate the importance of the new organizations that have sprung up within the industry in the past few years. First came Copper Exporters, Inc., formed in 1926 under the aegis of the Webb-Pomerene Act, to promote coöperation in exporting copper from this country. Its apparent purpose was to make America dominant in marketing as well as production. Yet the close alliance with British, Belgian, and German interests seems to indicate that price control was also a major goal.⁵ An international committee representing the Copper Exporters and its associates regularly sets a price c.i.f. Hamburg. Such a policy requires pooling and limitation of exports, which are in turn dependent upon production restriction agreements. Tho there is no way of proving the existence of such understandings, we know that the organization and its associates, embracing about ninety per cent of the world's producers, were able to check the downward swing of prices in 1927 and start them gradually upward again.

5. See "The Copper Cartel," by Carlton P. Fuller, *Harvard Business Review*, 6:322-328, April, 1928.

In its apparent endeavor to raise prices to a more favorable level it soon had an ally in the Copper Institute, formed about a year later, in November, 1927. This is a trade association composed of the domestic copper producers, modeled after similar groups in the steel, zinc, and petroleum industries. Its avowed purpose was the collection and dissemination of statistics relating to production, stocks, and marketing. This knowledge was to be used by each member as he saw fit. No joint policy was to be forced or advised by the central organization.⁶ The industry as a whole — so it was stated — merely felt that price swings might be greatly reduced if each seller and buyer could know the available stocks and the current demand. Such knowledge was expected to curtail the frantic under and over-bidding which at times caused unreasonable price fluctuations. In practice this result seems to have been obtained. Furthermore, leading producers in this country have "independently" and "voluntarily" regulated their production to meet the expected demand, hoping that the others would not break the market.⁷

The price rose steadily under the joint action of the two organizations, whose American membership is practically the same. They were aided by a steadily increasing industrial demand during the boom period in the fall and winter of 1928. During the months of March and April in the following year the guiding reins were unable to hold the price in check and frantic buying in anticipation of still higher prices boosted copper to twenty-four cents for a short time. None the less, the fact that the ensuing decline was stopped at eighteen cents, and the price held there for a full year under varying conditions of demand, attests the power of the two organizations.

It is obvious that the world price of a commodity of such wide consumption as copper must bear something of a constant relationship to the price in the country which leads in production, *e.g.* the United States. It may be said, therefore, that the "foreign" price set by Copper Exporters cannot

6. *Engineering and Mining Journal*, 124:833, Nov. 19, 1927.

7. *Engineering and Mining Journal*, 128:915, Nov. 14, 1929.

remain much out of line with the New York price. As long as that group is powerful enough to control the amount offered for foreign sale, it can also dominate the price in this country, provided American consumption is generally sufficient to absorb the remainder at that price. This condition has not been fulfilled of late, and the declining domestic price has forced the Hamburg figure downward.

The coöperating producers seem to have made one serious mistake and to have had one bit of hard luck. Their mistake was in trying to stabilize the price about two or three cents too high, while effectively restricting only 75 per cent of the world's production.⁸ The 1928 price of eighteen cents, following on the heels of the twenty-four-cent bonanza, stimulated production to the utmost by the non-included producers. In the foreign market the high price meant fewer sales and greater competition for the members of Copper Exporters. In the domestic market it meant piling up stocks at refineries.⁹

Then came the hard luck — the stock market crash and the business depression. Customs smelters began to quote bargain prices in order to secure quick disposal of even their small output, and in April the price began to fall in this country. The export quotation fell with it, and in three months the price had dropped to twelve cents.

This abrupt wiping out of profit margins did discourage production, but only among the small high-cost producers. If a large mine curtails output, it means both loss of sales to competitors and higher per pound costs, with disastrous results to the profit and loss statements. Hence production

8. Estimate of Col. Percy E. Barbour who predicted in March, 1930, that the price could not long be held at that level. The price broke in April. See "The Price of Copper," *Engineering and Mining Journal*, 129: 402-404, April 24, 1930, being an abstract of two articles appearing in the *Annalist*, March 14 and 21, 1930. An earlier protest and prediction was that of J. R. Finlay, *Engineering and Mining Journal*, 128: 971-972, Dec. 21, 1929.

9. F. E. Richter pictures the American copper interests as "holding the umbrella" over Belgian, German, and British producers who profited greatly. See "The Copper Industry in 1930," *Review of Economic Statistics* 13:15-18, Feb., 1931.

did not decline rapidly enough; stocks mounted, and prices dropped still further, going below ten cents in October, 1930. Another dose of coöperation was necessary.

In November, 1930, the Copper Institute, then professing to represent ninety per cent of the world's output, announced a world-wide agreement to curb production sufficiently to prevent further accumulation of supplies. It was calculated that the preceding eleven months had seen an apparent over-production of 20,000 tons a month, which would now be stopped by that much voluntary curtailment by producers, apparently on some pro-rata scheme not announced.¹ Since American producers had already taken the initiative in reduction of output, it was thought that most of the new cut would fall on the British-Canadian, Belgian-African, and other foreign production.² Declining consumption has made even the curtailed output too large, and stocks have mounted during 1931, sending the price to new low levels. Further attempts at concerted reduction of output have failed because of the opposition of low cost producers.³

Underlying all the pleas for a change in the tariff status of copper lies the fact of its present low price. The foregoing analysis should serve to dispel the notion that this is due to competition from foreign-produced copper shipped into this country free of duty. Future changes, however, may create more substantial grounds for tariff advocacy. We may proceed, then, to analyze the probable short and long run determinants of the future of copper.

On the supply side there is an unquestionable change in outlook. Less than a decade ago there was talk of a copper famine and prediction of price levels much above those with which we have become familiar. Today the wind has veered

1. *Engineering and Mining Journal*, 130:545.

2. Canada and Africa actually produced more in 1930 than in 1929, while American companies were considerably curtailing operations at home and in Latin America. Cf. "Arizona Mining Industry in 1930," by Charles F. Willis, *Mining Congress Journal*, 17: 8-11, Jan., 1931.

3. "Unexpected Decline in Copper Consumption Points to Further Cut in Output," by E. H. Robie, *Engineering and Mining Journal*, 132:90, July 27, 1931.

to the opposite direction, and we are told of the menace of abundant cheap copper from Africa, Canada, and South America. Without subscribing to the absurd allegations of the danger to American miners of competition from copper produced by "cheap foreign labor," it must be admitted that foreign copper is cheap and abundant. The large bodies of relatively rich ore are undeniable, even tho the cheapness of production has been greatly exaggerated.

The Katanga district in Belgian Congo has been a producer for two decades and has risen rapidly since the war. It has long been known to possess large reserves of high grade ore, yet its increments to supply have been absorbed with little disturbance. It is the Rhodesian output that seems to be the bogey of the future. Estimates of reserves in that region have risen in ten years from vague rumors to a definite known reserve of more than 23,000,000 tons of copper, in ore which will run between three and four per cent of metal. This reserve is equal to that of the United States, where ores average between one and one and a half per cent.⁴ Development work is proceeding and the first important mine, the Roan Antelope, began shipping concentrate during June. By the end of 1931 it is expected to be operating at a rate of about 65,000 tons of copper annually. The Rhokana Corporation 10,000-ton mill at that time will also be handling ore from N'Kana and N'Changa mines. If the present projects are carried through, North Rhodesian properties will be in a position to produce 260,000 tons a year by 1935 and perhaps 500,000 tons by 1940.⁵

4. These and other figures for copper ore reserves taken from the compilation by Percy E. Barbour, *Engineering and Mining Journal*, 131:178, Feb. 23, 1931. The totals are advanced as tentative and admittedly inexact, but as the best approximations now available. It must be realized that most vein mines do not publish reports of reserves for they do not know their available ore very far ahead. Porphyry mines publish figures but all they amount to is a statement of the extent of ore revealed by diamond drilling to date. Further drilling usually reveals more ore, though it is frequently (in this country) of a lower grade. In Rhodesia the reserves have been published as "ore above 500 feet," or 1000 feet as the case may be. See the *Mineral Industry yearbooks*.

5. Cf. S. D. Strauss, *Metal and Mineral Markets*, June 12, 1930,

Canada has recently developed into an important producer as new mines have been brought into production in Quebec, Ontario, and Manitoba. Her output of 113,000 tons in 1930 is less than half the planned capacity of 250,000 which will be in potential or actual production by 1937.⁶ Her ores are rich in other metals, and one of the largest mines is operated chiefly for nickel, with copper merely as a by-product.

It has long been known that the South American reserves are extensive and little explored. Recently the mountain of ore at Chuquicamata has had an unofficial revaluation adding 300,000,000 tons of four per cent sulfide ore to the previous estimates of more than 600,000,000 tons of 2.12 per cent carbonate ore.⁷ No one knows how deep or how far the sulfide ore extends, but the above estimates give a total copper reserve in this one property greater than all the copper yet discovered in Rhodesia. Furthermore, this ore is adapted to power-shovel, open-pit mining, which is the most economical method of extraction and the one easiest to expand when conditions warrant. There are two other large Chilean mines, Andes and Braden, but neither of them has the possibilities of rapid expansion possessed by the first-mentioned, and in 1929 both were operated nearly to equipped capacity with no major expansion work under way.⁸

In this country, Phelps-Dodge is developing its Morenci property to turn out an extra 60,000 tons or so by 1934, and the other porphyries, especially Utah, could so expand their production as to add another 150,000 tons to the 1929 output if price conditions warranted.

From the viewpoint of supply, therefore, it is obvious that, in addition to large reserve stocks of refined copper,⁹ there is

p. 5; L. C. Graton, *Engineering and Mining Journal*, 129:192-194, Feb. 24, 1930; and 132:39, July 13, 1931.

6. S. J. Cook, *Engineering and Mining Journal*, 125:619-620, and S. D. Strauss, *Metal and Mineral Markets*, June 5, 1930, p. 7.

7. Barbour, loc. cit., and *Engineering and Mining Journal*, 131:32, Jan. 12, 1931.

8. See Parsons, *Engineering and Mining Journal*, 126:221 and 127:557; also Barbour, loc. cit.

9. It is likely that considerable additional copper is now being held by speculators and does not show in the published figures of visible stocks

hanging over the market, from projects already under way, a potential expansion of production of at least 400,000 tons of new production by 1935, not to mention the 330,000 tons slack in the old mines indicated by the drop in output during 1930. It is this probable addition to supply that constitutes the greatest barrier to the rapid return of the price to even the 1928 level of 14.57 cents. The world consumption must regain its 1929 rate plus 400,000 tons, or its 1928 figure plus 620,000 tons, in order to bring back a prosperity price by 1935.¹ Can it be done? Upon the answer hangs both the immediate future of the copper industry and the very life of several important American mines whose cost of production is now above the market price. If this sword of Damocles, together with slow recovery from the business depression, keeps the price around ten cents for the next year or two, high cost producers in this country, representing perhaps thirty per cent of our domestic output, will have to close down.²

From whatever angle one looks at the copper situation the immediate future does not look bright.³ If the price should remain below 12 cents for any length of time, there is the further danger that American corporations owning properties both in the United States and in South America may deem it profitable to close down some United States mines and pro-

1. If world consumption be estimated at 1,600,000 tons in 1930 (primary production, 1,770,000 tons less 170,000 tons increase in refined stocks), it would have to increase at a rate of 9.3 per cent a year to equal the 2,500,000 tons potential mine output of 1935. This rate is higher than the 8.5 per cent rate of increase of consumption, 1923-28 (based on 5-year moving average of production), and much higher than the rate of 6 per cent commonly accepted as the average for the last 50 years.

2. The U. S. Tariff Commission memorandum, *The Copper Mining Industry and the Tariff* (May 8, 1930), states that when all costs including depletion were calculated, only 26 per cent of the United States production in 1928 was above 12 cents. The average was 10.27 cents. The average for foreign producers of 90 per cent of our imports was similarly set at 10.20 cents. On costs of production, see also the studies of the Mineral Research Corporation reported in the *Engineering and Mining Journal*, 127: 908-909, and 130: 25-26.

3. Cf. J. R. Finlay's prediction that a 12 cent average is likely for the coming decade. *Mining and Metallurgy*, 12: 56-57, Jan., 1931.

duce their entire market contribution at a larger profit margin from their lower cost mines, chiefly in Chile and Peru. If this should occur, it would make our production fall behind our consumption and give the tariff advocates a rather effective case. They might also argue that in ten or fifteen years the production of these American mines will be needed by expanding world demand and that it would be more economical to continue them in operation throughout the slump by the help of a tariff and a trust than to allow them to close down for ten years. The expense of reopening mining property after a long shut down is almost as great as that of starting a new mine or mill.⁴

On the other hand — still considering the short run possibilities — certain factors must be noted: the present world agreement to restrict output, which is essentially intended to preserve the high cost producer (even tho the present price level does not indicate a high degree of success); the fact that in 1930 there was no apparent favoritism shown the Chilean properties; the foresight of the companies themselves; and the American penetration of the Rhodesian field with its resultant opportunity for slowing up developments which might harm the older properties owned by the same companies in this country.

Consider the situation now from the long-run viewpoint. The copper industry at present is merely in a cyclical depression from which it is destined to emerge. The secular trend of copper production for the past fifty or sixty years reveals an average annual increase of about six per cent.⁵ Since world production over such a long period of time corresponds with world consumption, we may predict that a secular continuation of this six per cent consumption increase is likely in the future, and from it calculate how much the production must grow in order to meet the world demand at a future date.

4. Suggested by J. B. Tenney in a paper read at the meeting of the University of Arizona student chapter of the American Association of Mining Engineers, Tucson, April 22, 1931.

5. See "Copper Production and Consumption," by Percy E. Barbour, *Engineering and Mining Journal*, 129:303-304, March 24, 1930, being an abstract of an article appearing in the *Annalist*, March 7, 1930.

Starting with an approximate consumption of new copper in 1928 of 1,800,000 tons, at a six per cent rate of annual increase more than 3,600,000 tons will be needed by 1940.⁶ Where is the extra 1,800,000 tons to come from? If the developed mines of the world continue to produce at the 1928 rate without any recession, and if Canada and Rhodesia together add 800,000 tons, the world will still be 1,000,000 tons short. Part of this will be produced by the Katanga group, part by expansion in South America, and most of the rest will have to come from other existing mines including those in this country. Under the marginal cost analysis, this secular trend should result in a relatively high price by 1940.⁷

It may be concluded, then, that the long run position of the copper industry of the United States is sound. Granted a normal recovery from the present business depression, within ten years domestic mines are likely to be producing to capacity under the stimulus of a fifteen-cent price. This offers a sufficiently large margin above costs to enable 90 per cent of our mines to earn a fair profit.⁸ If some foreign mines happen to be producing at that time with a wider profit margin, *i.e.* at lower costs than our average, the domestic industry can make no legitimate objection. Furthermore, when our demand comes to exceed our supply so that we have to import from foreign fields, those mining communities will not be hurt in which the mines are operating at efficient capacity in spite of importations.

6. Actual production in 1928 was 1,880,000 tons, 5 year moving average was 1,811,000 tons. Several writers have attempted this problem of projecting future consumption trends. The calculation is performed by three different methods in *Mineral Resources*, 1926. L. C. Graton, *loc. cit.*, projects at a conservative 4 per cent. Percy E. Barbour, *loc. cit.*, uses 6 per cent.

7. When secondary copper totals are included, the rates of increase of total production and consumption are both raised. Therefore the rapidly growing recovery of scrap metal will not affect our calculation of the probable necessary expansion in mine output. The relative importance of our secondary copper is not generally realized. From the viewpoint of the copper miners of this country, our reclaimed copper offered as much competition in 1929 as the entire output of South America, Africa, and Mexico. The total of 627,000 tons was also more than the combined production of our two leading states, Arizona and Utah:

8. See footnote above concerning United States costs of production.

There are two things which may cause these estimates of the copper consumption of 1940 to prove too large; one is the decrease in the rate of world population growth, especially in the great copper consuming countries; the other is the chance that the major copper consuming inventions of the past will not be duplicated in the future. Nevertheless there appears to be enough margin of probable demand above potential supply to take care of such contingencies. It should be noticed also that the supposition of continued production of present mines at the 1928 output is a probable offsetting exaggeration on the supply side.

The preceding evidence seems to point to the following conclusions. With the upward swing of the business cycle the price of copper will probably recover, and start upwards earlier under the present restriction of output than would otherwise have occurred. The supply from new mines, however, is likely to cause a relative plateau in the price curve at about twelve cents. It is unlikely that the agreement for curtailment will be effective after that point is reached. If another great business depression does not intervene, world consumption by 1940 or 1942 will probably have reached the point where the requisite copper supply will only be forthcoming at a price of fifteen cents or more.

To return to the tariff problem. Suppose Congress does impose a duty at the next session. Under free competition, a duty would have no effect, for the price in the United States will remain equal to the world price as long as the present production surplus exists. If the legal and economic difficulties in the way of forming a trust could be overcome by American producers, they might conceivably lower the output still more and bring domestic supply below domestic demand at the world price, thus forcing the price up.⁹ The obstacles to this seem insurmountable at the present time; but even if they were overcome, it would not benefit the

9. The economic barrier to sustained curtailment of output in this country to benefit the high cost producers is indicated by the 1930 report of the Utah Copper Company in which the rise in cost of production from 6.65 cents in 1929 to 8.47 cents in 1930 is definitely ascribed to the

already depressed mining communities to have their mines closed down still farther. The formation of a trust to restrict domestic market offerings, while dumping abroad behind the protection of a tariff wall, might indeed succeed in combining high domestic prices with near-to-capacity production.¹ But this would be illegal under our anti-trust laws. Possibilities of a Federal Copper Board, analogous to the Federal Farm Board, are negligible.

If and when the day does come that national consumption exceeds production, a tariff would be effective without a trust. It could then raise the price, however, only by an amount sufficient to call forth the extra production needed to meet domestic demand, not by the full amount of a high duty, as many copper tariff enthusiasts assume. The actual benefit to the American producers would depend upon several variables, chief among them the elasticity of domestic supply and demand, and the quantitative difference between domestic consumption and the production forthcoming at the world price. The experience of the last two years seems to indicate that, over short periods of time, the supply is rather elastic between twelve and eighteen cents. Below twelve cents marginal producers are forced out. Above eighteen cents new expansion is stimulated but does not immediately affect supply.² Below about twenty cents demand seems more a function of general business conditions than of the price of copper. Above that figure aluminum and other substitutes furnish competition. Thus, within the customary price range, an attempt to raise the price behind a tariff wall would, under competitive conditions, quickly stimulate an increased supply but have little effect in curtailing demand. This elasticity of smaller scale of operations. *Engineering and Mining Journal*, 131:386, April 27, 1931.

1. Cf. the success of the group led by Calumet and Hecla in the seventies. See F. W. Taussig, *Some Aspects of the Tariff Question*, Cambridge, Harvard University Press, 1915, essay on "Copper," pp. 161-170, and F. E. Richter, "The Copper Mining Industry in the United States, 1845-1925," *QUARTERLY JOURNAL OF ECONOMICS*, 41:236-291, Feb., 1927.

2. Cf. Percy E. Barbour, *Engineering and Mining Journal*, 129:402-404, April 24, 1930.

supply will greatly limit the possible tariff benefits when a production deficit does occur.

American consumption, however, is not likely to exceed production more than temporarily within the next decade. As we rise from the trough of the depression, copper prices will mount and production expand, keeping pace with consumption till checked by declining ore reserves. For some time thereafter the spread will be small and its increase gradual. Throughout the decade the possible effectiveness of a tariff would vary directly with the size of this deficit.³

For the present it seems that the copper producing states which are pleading for a tariff are barking up the wrong tree. In a country imbued with protectionist sentiment it is no wonder that they got off on a false scent. The ideal course seems to lie in just the opposite direction, namely, in efforts to reduce tariff barriers in general and our own in particular. The two enemies of the copper industry are high costs of materials consumed and lack of industrial demand. The rise in American tariff walls has been largely responsible for the rise in price of the things which mines, smelters, and refineries must buy. More important, however, is the effect of restriction of imports upon the amount of our exports. If we do not buy from foreigners, they can not buy our surplus copper, wheat, automobiles, and other goods.

Furthermore, the rise in tariff walls the world over (partly inspired by our example) is a major barrier to that commercial prosperity and revived demand which is the great need of those with copper to sell. If our copper states would sponsor a general tariff reduction, they would find fully as much support as they could get for their tariff plan. Their program would not only assure the immediate and ultimate benefit of the industry which supports them, but would also contribute to the general economic welfare of the United States and the world at large.

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3. If the copper price should remain under twelve cents in spite of business recovery, the spread would quickly increase. It seems likely, however, that the South American and African producers will not choose to expand that rapidly.

PRODUCTION AND CONSUMPTION OF COPPER IN THE UNITED STATES
(Thousands of Short Tons)

	PRODUCTION			CONSUMPTION
	Primary	Secondary	Total	
1892	173	...	173	128
3	165	...	165	76
4	177	...	177	99
5	190	...	190	129
6	230	...	230	98
7	247	...	247	117
8	263	...	263	150
9	284	...	284	206
1900	303	...	303	183
1	301	...	301	191
2	330	...	330	276
3	349	...	349	263
4	406	...	406	241
5	452	...	452	300
6	444	25	469	364
7	392	30	422	274
8	460	12	472	252
9	533	45	578	388
1910	536	95	631	461
11	551	107	658	448
12	602	138	740	516
13	618	137	755	543
14	605	128	733	438
15	694	196	890	718
16	944	350	1294	1077
17	937	383	1320	1075
18	941	353	1294	1184
19	717	287	1004	744
1920	591	312	903	838
1	305	217	522	522
2	452	336	788	784
3	732	411	1143	1061
4	837	388	1225	1065
5	841	420	1261	1121
6	866	480	1346	1265
7	859	490	1349	1201
8	896	537	1433	1341
9	991	627	1618	1516
1930	696	467	1163	1100

Calculated from data published by the United States Bureau of Mines (Department of Commerce) in the annual, Mineral Resources of the U. S. From the same source for 1930 in Engineering and Mining Journal, 131: 530, 535, June 8, 1931.

Primary production: Smelter production, 1892-1904; total refinery production of new copper from domestic ores, 1905-1930.

Secondary production: Total production of copper, brass, and other copper alloys from reclaimed scrap (figures include copper content only).

Total consumption: Available supply (production plus imports minus exports) 1892-1900; withdrawn from total supply on domestic account (available supply plus or minus net change in visible stocks), 1901-1930.

UNEMPLOYMENT: ITS LITERATURE AND ITS PROBLEMS

A COMPREHENSIVE discussion of all the literature bearing on unemployment would lead into a consideration of a multitude of proposals for economic reform and reorganization, from communism to business planning, and of all sorts of related topics — tariffs, public finance, antitrust laws, business cycles, banking and currency, scientific management, trade unionism. Nothing so wide ranging is to be undertaken in this paper: it is limited to books dealing directly and primarily with unemployment.¹

1. The books reviewed here are, in the order examined:

Beveridge, Sir W. H., *Unemployment, a Problem of Industry*. New ed. London: Longmans, Green, and Company 1930. pp. xxvii, 514. 21s.

Douglas, P. H. and Director, Aaron. *The Problem of Unemployment*, New York: The Macmillan Company 1931. pp. xv, 505. \$3.50.

Hobson, J. A. *Rationalisation and Unemployment, an economic dilemma*. London: George Allen & Unwin, Ltd. 1930. pp. 126. 3s. 6d.

National Federation of Settlements, Unemployment Committee. *Case Studies of Unemployment*. Philadelphia: University of Pennsylvania Press. 1931. pp. 1, 418. \$3. (Industrial Research Department, Wharton School of Finance and Commerce, University of Pennsylvania, Research Studies XII).

National Industrial Conference Board. *Lay-Off and its Prevention*. New York. 1930. pp. ix, 86. \$1.50.

Smith, Edwin S. *Reducing Seasonal Unemployment, the experience of American Manufacturing Concerns*. New York. McGraw-Hill Book Company. 1931. pp. xvii, 296. \$3.00.

Stewart, Bryce M. and others. *Unemployment Benefits in the United States, the plans and their setting*. New York. Industrial Relations Counselors, Inc. 1930. pp. xviii, 727. \$7.50.

Gilson, Mary B. *Unemployment Insurance in Great Britain, the national system and additional benefit plans*. New York, Industrial Relations Counselors, Inc. 1931. pp. xv, 560. \$5.00.

Davison, Ronald C. *The Unemployed, old policies and new*. London, Longmans, Green and Company. 1929. pp. xiii, 292. 10s. 6d.

What's Wrong with Unemployment Insurance. London, Longmans, Green and Company. 1930. pp. 73. 2s. 6d.

Carroll, Mollie R. *Unemployment Insurance in Germany*. Washington, D. C. The Brookings Institution. 1929. pp. vii, 137. \$2.00.

Committee on Recent Economic Changes and Wolman, Leo. *Planning and Control of Public Works*. New York. National Bureau of Economic Research, Inc. 1930. pp. xxviii, 260. \$3.00.

All these books deal primarily with palliatives and relief. Much of the most significant discussion of causes and preventives is to be found in other works. The literature as a whole reflects an extraordinary breakdown of capitalistic morale. Ambitious avarice seems to have few defenders and no admirers. There is little inclination to state openly that unemployment is the price of economic progress, and still less to suggest that if the wage earner suffers from unemployment through no fault of his own, he also benefits from progress through no merit of his own. The problem is treated as one of high moral responsibility and urgent political necessity. This mixture of free will and determinism may puzzle the philosopher, but the man of action cannot be hindered by philosophical doubt and logical subtlety.

Economists cannot consider the problem as one of the advantages and disadvantages of measures against unemployment, *if* some measures are adopted. Some measures against unemployment are going to be adopted; we cannot reject them all. The weaknesses and dangers of most of the proposed expedients are great. But, faced with the moral conviction of the evils of unemployment, some measures are going to be taken which will involve substantial modification of social institutions and social ideals. The United States will not continue to be so radically different from other industrial countries. Whatever the economist may do in theoretical analysis, in practical matters he must deal with political and sociological considerations. Above all, he must realize that in dealing with unemployment, he cannot be content with general principles, but must deal with technical and administrative matters, the hard core of the problem. The new spirit is not all hysteria which will pass away without a trace. Notwithstanding its absurdities, exaggerations, and hypocrisies, the newer attitude toward labor problems is a reality with which the economist must reckon in the statement of his problem.

There is an interesting contrast between the British and the American literature. The British literature is permeated by a lack of confidence in business enterprise. If we assume

this is not all exaggeration, the situation may have some significance for the old question of hampering enterprise by elaborate government and trade-union regulations and by progressive taxation. We should, of course, be on our guard against a quick conclusion that regulation is the cause and lack of enterprise the effect. The line of causation may be the other way. More probably, the common causes of both are to be found in the economic, political, and social history of England. In any event, the cumulative influence of many small and apparently desirable regulations is to be watched.

I

The literature reviewed here includes two general works, a revised edition of Sir W. H. Beveridge's *Unemployment* and Douglas and Director, *The Problem of Unemployment*. Sir William Beveridge's book has a place so important and well known — both in the history of unemployment and in the literature — that there is no need to describe the scope and method, the point of view, or the principal doctrines. The original work is Part I of the present edition. The new chapters describe later British experience, extend the discussion of cyclical unemployment, modify the theoretical position on the relation of population to unemployment, and emphasize high wages as a cause of unemployment. No higher praise can be given the new edition than the statement that it has the merits of the first edition and well deserves the same careful study.

The Problem of Unemployment was written by its authors, Douglas and Director, as a preliminary survey for the Swarthmore College Unemployment Study. It is admirably proportioned, and should be a useful introduction for the general reader and the college student. The first part deals with the extent and costs of unemployment, the next three with seasonal, technological, and cyclical unemployment, and the last two with public employment offices and unemployment insurance. It is not sufficiently careful and searching to have a permanent place in the scientific literature.

The authors have combined theory and statistics, administrative expediency and advocacy of reform. Their discussion of the question, do technological changes cause permanent unemployment?, is a model of theoretical exposition.² By talking in terms of a money and price economy, instead of barter, they put Say's law in a much more intelligible form. They manipulate statistics in a bold, even reckless, fashion to obtain a none-too-useful estimate of the amount of unemployment in the United States in the period 1890-1926. In the administration of both labor exchanges and unemployment insurance, they are skeptical of bureaucracy and seek participation by employers and employees. In their advocacy of reform, they sometimes content themselves with first steps and sometimes advance plans of doubtful practicability in the immediate future.³ Their suggestions will merit

2. This was written before the appearance of Professor Alvin H. Hansen's article, *Institutional Frictions and Technological Unemployment*, in the August, 1931, number of this JOURNAL. Professor Hansen finds "a serious fallacy" in this "model of theoretical exposition." The serious fallacy is, I think, in Professor Hansen's own argument. When costs and prices are cut by labor saving improvements, he argues, "consumers gain, indeed, in purchasing power, but their gain is offset by the loss in purchasing power suffered by the displaced workers . . . There is no net increase in purchasing power." (p. 686.) But the purchasing power of the consumers and of the laborers whom they employ are at two different stages of transactions; they are not additive. The consumers and the wage earners are not distinct classes. No one has asserted an increase of money incomes, if that is what is meant by purchasing power. The consumers regularly spend the same money incomes: if the displaced laborers get none, other wage earners get more. This continues until the displaced laborers enter the trades where wages are exceptionally high. The artificial simplicity of this argument, so reminiscent of the wages fund or the quantity theory, is unattractive to the specialist, whose own formulation would be unintelligible to the readers for whom Douglas and Director were writing. I should add that Professor Hansen's error does not affect his useful discussion of institutional frictions.

3. The difference in time for which recommendations are made may account for an apparent discrepancy in advocating participation by employers and employees in a state system of employment exchanges and in advocating that the state should not have the "actual administration" of unemployment insurance (p. 490), while "the public employment offices . . . should be managed by the same body" as the insurance fund. (p. 492.) The state should bear the cost of administration and provide emergency benefits (*ibid*). Apparently participa-

careful consideration, even tho some of their arguments and analogies are more plausible than convincing.

Mr. J. A. Hobson's Rationalisation and Unemployment is another restatement of his well-known views on underconsumption and overproduction. The argument is in terms of real incomes, not money and prices, and in terms of the long run, not time lags and inflexibility. The restatement may not make much headway against the stubbornness of professional economists, but it will have a great popular appeal, nevertheless.

In contrast to Mr. Hobson's theoretical generalizations stands the empirical inquiry of *The National Federation of Settlements, Case Studies of Unemployment*. One hundred and fifty cases are reported by settlements in thirty-two cities in twenty-one states. They were gathered before the fall of 1929, and include only families where the breadwinner was without work through no fault of his own. The cases were edited by Marion Elderton, of the Industrial Research Department of the Wharton School of Finance and Commerce, who has prepared an admirable recapitulation to aid the student. The stories are vividly told, as requested in the questionnaire, and will stir any reader, whether he has visualized the human costs of unemployment, or thought of the unemployed as lazy good-for-nothings.

The purpose of the book is to stir Americans to action, and in her introduction Miss Helen Hall points out the lines for action. These lines of action — stabilization, planning of public works, employment agencies, and unemployment insurance — are advocated without making clear their connection with the reported cases. A number of the unemployed whose experiences are reported would not find employment on public construction works, would remain some time on the books of a public employment office unless employment was very good, and would have exhausted unemployment insurance benefits. These devices, whatever be their merits, do not deal with the whole situation. They tion in a state scheme is the first step, which is to lead eventually to the disappearance of the state from actual administration.

leave a relief problem where unemployment is the principal cause of distress.

Miss Hall states that "in our relief methods for the unemployed, we are using a dole which is more demoralizing than any plan of insurance would be" (p. xlv), but she gives no program for their improvement. Settlement workers are quite right in making such a bold and stirring report; but they should at the same time report on the technical and administrative relief problems on which their intimate knowledge of their neighborhoods makes them peculiarly competent. Charity is changed but little by calling it by another name, and putting the burden on the public treasury does not remove the necessity for sounder case work.

Another point of considerable significance is the rôle which Miss Hall assigns to "management." "Why," she asks, "should our business organizers have been so backward in matching these upsetting inventions with a modern employment service, federal, state, and local, that will make use of abilities now allowed to go to waste for lack of any adequate system to distribute them?" (p. xl.) And again she says, "It is obvious that the regularization of industry cannot be carried out by the man whom it most directly affects. We put that up to management." (*ibid.*)

Here, as in much other American writing, it is management to which flattery, criticisms, and threats are addressed. However, management as we know it is only a collective name for a large number of individuals or a bundle of heterogeneous activities. Most, if not all, the problems of unemployment involve the correlation of management policy with political and social factors. To what extent are our political bodies and our labor and farmer organizations tools of management, or should they be? The competence of our business organizers in the field of social and economic planning is yet to be tested.

Two of the books reviewed here are studies of measures against unemployment taken by business managers in their own companies. The study of the National Industrial Conference Board, *Lay-off and its Prevention*, deals primarily

with matters under the control of the factory manager; Mr. Edwin S. Smith's *Reducing Seasonal Unemployment* deals principally with marketing and sales problems. The two combined give an excellent picture of business policies and devices.

The Conference Board's report, though not published until 1930, is based upon a study of 1927 experience. It appears to deal principally with seasonal problems, although the material was not classified by causes of the lay-off problem. The experience amply justifies the conclusion that "it is impracticable to lay down hard and fast rules" (p. 78). Two items from the interesting report are worth noting here. "More than three-fourths of the companies . . . considered it advisable, as a general practice, to distribute available work as nearly as possible equally among the personnel before considering a serious reduction in the working force" (p. 27), and four-fifths of these preferred curtailment of plant hours to any rotation of employees (p. 30). A report of 1930 experience would, I believe, find companies less favorably inclined to distributing work. Of interest also is the report of 152 companies on selection of employees to be retained. Sixty-five stated that workmanship received the greater emphasis, and sixty-seven replied that length of service was the first consideration, while twenty gave equal weight to both. Both, as a rule, receive serious consideration (p. 38).

Mr. Smith obtained his information primarily by letters of inquiry addressed to manufacturers. In view of the notoriety of this method, it is interesting to note that he obtained usable replies in one-third of the cases. This extraordinary success is a tribute to the interest in the subject, to the prominence of the members of the sponsoring committee, and to the care in preparing the list and the letter. Some of the experiences are necessarily reported very briefly. They cover a wide and interesting range of topics, including creating out of season uses for the seasonal product, diversifying the market and the product, inducing early orders, simplification, and budgeting. In the wide variety of cases reported, it is conspicuous that a business device has often worked well for

some companies and failed for others. As the committee remarks in its introduction, "at this stage of the art of management, at any rate, the business manager on the hunt for help in his problems is more apt to find it among an orderly variety of cases than in attempts at broad generalizations." (pp. xvi, xvii.)

Both studies make the generalization that regularity is to the manufacturer's interest. In the Board's report the proposition is stated somewhat boldly; in Mr. Smith's study it is qualified with discrimination. In any case, the interest shown in regularization is worth noting in view of the recurrent suggestion that business men need to be given an incentive to stabilize. This suggestion is both false and unfortunate. It is false, because business losses and unemployment have common causes; and it is unfortunate, because it distracts attention from the essential problems of organization and administration, and because we cannot win victories by holding a pistol at the general's head.

Scrupulous attention to the essential problems is the outstanding characteristic of the two studies by the Industrial Relations Counselors, Inc., Bryce M. Stewart's *Unemployment Benefits in the United States*, and Mary B. Gilson's *Unemployment Insurance in Great Britain*. Studies of German, Swiss, and Belgian experience are to follow, and the whole series will unquestionably contribute as the authors hope to careful planning and sound practice in the field. The present studies are models of painstaking thoroughness; they are based upon field work and interviews as well as printed material, and the manuscript reports were submitted to competent critics both here and abroad. The material is presented in a peculiarly unbiased manner, and the authors, somewhat to the reader's disappointment, do not indicate the personal views they have formed. They do not attempt to solve theoretical controversies or to sum up stray bits of evidence, but they have not omitted any subject on which factual data are to be had.

Part I of Mr. Stewart's book first puts American benefit

plans in a setting of "America's approach to unemployment" and of methods for prevention and reduction of unemployment. Then follows an account of the development of American relief plans, a study of financial organization and experience, both on contributions and benefits and on limitations on claims, and an examination of administrative procedure. Part II, three hundred and fifty pages of fine print, contains the evidence behind the conclusions of Part I — the detailed experience of trade union, joint agreement, and company plans.

Trade union benefits were practically the only form of unemployment benefits prior to the war. While the unions have adopted plans on both an "international" and local basis, the local schemes have been both more numerous and, on the whole, more successful. In 1929, approximately 34,700 trade unionists were protected, and only some 1,300 were in "international" plans. Less than 1% of the trade unionists are included. Moreover, the movement for trade union benefits is today "on no more stable a basis than it was decades ago" (p. 201). "A partial explanation" for this contrast with European experience is seen "in the fact that the American labor movement has not yet entirely emerged from its militant stage" (p. 84). Unless militant is defined to contrast with benefit, the present writer doubts the validity of this explanation, for the German and British unions have at least as good claim to the militant title as the American.

Joint plans for unemployment benefits are defined as those established by trade agreements, and are found only in the United States. The existing schemes cover about 63,500 wage earners, most of them in the highly seasonal garment trades and outside the American Federation of Labor. Invariably the union has been the promoter of these schemes. The tendency seems to be for the employers to pay an increasing amount of the cost. Here, as in the union plans, high benefits and great employee interest go together. Of all the plans, the most interesting, in the present writer's opinion, are those of the Amalgamated Clothing Workers, which have been administered with such ample records that a full

description is possible and that an actuarial basis for the scheme may sometime be found. In the joint schemes, the benefits are clearly seen as deferred wages (p. 210) — a point, in my judgment, of great merit.

Company plans are rare outside the United States, and as yet rare within. The movement is young, the number of plans small, and the coverage is relatively insignificant. The plan of the General Electric Company (which had 73,500 employees in 1928) appeared too late to be considered in the text of Part I, and increased many fold the 8,500 eligible employees covered in 1928. It marked the introduction of the contributory principle into company plans. The number of company plans has been increased since the publication of Mr. Stewart's book by the joint adoption of unemployment funds by 14 firms in Rochester, N. Y. Of these firms, which had a normal working force of 26,000, the Eastman Kodak Company is the largest. The company plans pay benefits only to employees laid off whom the company expects to take on again later. The "dismissal wage," paid to workmen let go permanently irrespective of their success in obtaining another job, is not covered in this study of unemployment benefits. The company plans show again a wide variety of expedients to grapple with the uncertainties of unemployment. The Dennison Company set up a definite fund out of profits, while the Leeds and Nothrup Company is one of the few which attempted to get actuarial data over a period of years before setting up an unemployment fund.

Plans of all types have had to avoid establishing rigid legal rights. Confronted with the uncertainties of unemployment and the necessity of balancing income and expenditure, considerable elasticity has been necessary. The administration of the union plans and some of the joint plans is in the hands of the union officials; the company officers administer the company plans; and some of the joint plans have independent administration. Some of the joint plans are the only ones to segregate the unemployment funds. For details on these significant points, the reader must be referred to Mr. Stewart's book.

Space will not permit any summary of Unemployment Insurance in Great Britain which would do justice to such an elaborate and careful assembly of information on all the important topics. The report does not limit itself to a statement of the principal features of legislation and administration, but penetrates into the details of British experience. It deals with such neglected topics as the participation in the State Scheme by unions and approved societies and the unaided provision of benefits by industries contracted out, by individual forms and by trade unions, as well as with the more spectacular topics of mobility of labor, poor relief, demoralization and malingering. It also summarizes the principal discussions on unemployment among British economists, and tho avoiding speculative arguments, presents any available factual evidence that would throw light on the merits of the controversies.

The discussion of mobility is an excellent example of factual evidence forcing a restatement of the question and in indicating the need for still more data. The facts show that considerable internal migration and stagnant areas both exist. There has not been an unsatisfied demand for labor in any quarter. There is conspicuously less wandering about the country, which may mean immobility or may mean avoidance of demoralizing waste. Workmen were not perfectly mobile before insurance, and now immobility is to be charged more against poor relief than against insurance. On the other hand, insurance has in some instances enabled both employers and workmen to settle down to the acceptance of short-time and unorganized casual work as inevitable. The Act of 1927 introduced the statutory requirement that a claimant, "after a reasonable length of time," should accept employment other than in his accustomed occupation. The facts do not give any conclusive answer to the question of mobility, as the present writer sees it; and the question merges into the general question of the effect of insurance in creating the unemployment it is designed to relieve.

The case of demoralization is similar. "Every impartial body says that allegations of general abuse of the insurance

system are without foundation" (p. 282). Some demoralization exists, but the blame to be allocated to the war, to the post-war unemployment, and to poor relief, cannot be assessed. Violations by individuals of legal requirements are less serious, in my own judgment, than the relaxations of group standards themselves. As the Webbs have stated, the psychological advantages which offset the evil of the scheme depend upon maintaining the feeling that it is really insurance (quoted, p. 273).

Any student of the complex British experience, or, for that matter, of the general subject of unemployment, will find in Ronald C. Davison's *The Unemployed and What's Wrong with Unemployment Insurance* vigorous and well-informed discussion of the highest order. Even on technical matters, Mr. Davison writes in an unusually pleasing and lucid style. His principal work, *The Unemployed*, will take its place beside Sir W. H. Beveridge's standard work. The title is significant; Mr. Davison does not deal with the abstraction, unemployment, or with the abstract sub-classes — seasonal, cyclical, etc. — but with the men, women, and children who are unemployed. He does not direct his attention to uncontrollable "causes" of unemployment; and he leaves "the fundamental issue" of prevention to others. He takes as his subject the merits and weaknesses of the various systems of treatment, and these he has examined thoroly and summarized effectively.

Mr. Davison pursues his studies in an admirably dispassionate, judicious, and realistic temper. To illustrate by quotation (p. 130-131):

SOCIAL EFFECTS OF THE BENEFIT POLICY. — From the foregoing record of the policy followed in respect of unemployment insurance, it is clear that, under the spur of necessity, Ministers and their officials were driven into strange courses. Fits of generosity were succeeded by fits of economy. Compulsory insurance contributions were piled high. The state share, the amount of the debt, in fact the whole financial basis, became quite arbitrary. Benefit was expanded until it practically became a gift to at least half the claimants. Then, in an effort to check the flood of claims and weed out some of the less deserving cases, new tests were invented and new functions were vested in the Exchanges

and the Local Employment Committees. The original insurance scheme of 1920 was distorted almost out of knowledge.

But, after all, the need was overmastering. It was no time for the nice adjustment of insurance principles. Maintenance of some kind had to be provided for millions of workers (and their dependents) who were deprived of their weekly wage through no fault of their own. And it was no small achievement that, during such a time of unexampled stress, the worst ravages of poverty should have been kept at bay. Starvation was scarcely known and children were kept clothed and fed. . . . It was mainly the provision of unemployment benefit which kept the community going on a more or less even keel during these years.

After this whole-hearted recommendation of the entire work to every economist, it is somewhat difficult to single out any of the chapters as peculiarly noteworthy. Attention may be called, however, to the *Analysis of the Unemployed and to Maintenance is not Enough*. In the first, Mr. Davison discusses the distribution of unemployment, the residue of chronic unemployment, the individual analysis, discontinuity of unemployment, casual employment, seasonal trades, juvenile labor misused, the downward drag of unemployment, and the unskilled in the labor market. Four industries — coal, iron, engineering, and shipbuilding — have been responsible for 40% of the total unemployment. Unemployment is unequally distributed geographically, and this inequality is persistent: Wales, Scotland, and the north of England are hardest hit.

The other chapter, with a title which might serve as a slogan, *Maintenance is not Enough*, is an examination of "the twofold problem of reform: how to improve the condition of certain occupations, and how to restore or maintain the quality of the men and women whom industry leaves stranded by the way" (p. 207). It consists of studies of the regulation of the labor market, of training, and of the treatment of the elderly and infirm.

The pamphlet, *What's Wrong with Unemployment Insurance*, has the same intellectual vigor as Mr. Davison's book. He attacks the suggestion of a universal dole. On this point he concludes (p. 28): "Whatever ground . . . there may be for doubting the complete justice of the contributory method

for insuring the mass of the workers against unemployment, these must be regarded as relatively abstract as compared with the solid fact that such a method is administratively desirable and financially inevitable at the present time."

The three principal conclusions are (pp. 71-72): (1) No acceptable scheme of contributory insurance can continue to carry a costly burden of noncontributory beneficiaries. There must be a second line of defense for them, which cannot rest on any other test than "proof of need." (2) The new Public Assistance Authorities (the successors to the local Boards of Guardians) are well fitted to distribute this kind of relief, both maintenance and restorative measures. (3) The Insurance Scheme must be reformed to give it some guarantee of stability. The ratio of benefits to contributions, *i.e.*, an arithmetical check on benefit, must be restored. This would protect the fund against excessive claims of married women and seasonal and casual workers, and of chronically irregular industries. These steps, in my own judgment, are essential if clarity is to be restored and the essential principles of the Act of 1911 to be retained.

These principles were rejected by the framers of the other compulsory system, the German Act of 1927, which is the chief subject treated in Mollie Ray Carroll's *Unemployment Insurance in Germany*. The Germans provided for emergency benefits and relief works to be administered by the same offices as the insurance itself. The seasonal workers, who before the act had usually not required assistance, drained the fund seriously.

Miss Carroll's book was published in 1929, and covers so short a period of insurance experience that it has more the nature of a commentary on the law and administrative orders than an economic investigation. The German experience, brief tho it is, deserves a less superficial treatment. Two of the author's opinions on points of general significance, population and relief works, are worth noting here. On population, the author's studies lead her to the view that "Germany, . . . in common with England, has a population far in excess of the number for whom work can be provided." (p. 111.)

She concludes also that public relief works "undoubtedly assisted" in bringing about the reduction of unemployment after the first quarter of 1926 (p. 39). Against the cost of such works "must be balanced not only the test of willingness to work, insurance benefits saved, enterprises actually carried out, and economic goods created, but such imponderables as assistance in revival of the labor market and conservation of labor power and morale." (p. 80.)

In view of the fact that relief works have been condemned, as a writer in this JOURNAL⁴ has well said, "with a unanimity rare among economists," this exceptional German success might well be examined more thoroly. Part of the explanation is to be found in the closer approximation to the free contract status, and part of it in the unusual amount of construction needed after the war. Germany was beginning (in 1929) to experience difficulty in finding suitable works (p. 77). The extent and effects of public works as contrasted with relief works are not known, and it cannot be determined how far they have been timed to meet crises of unemployment (p. 75).

For the United States the planning and control of public works is the subject of a report by The Committee on Recent Economic Changes, which in turn is based in part on a report by Dr. Leo Wolman and the National Bureau of Economic Research, Inc. Between the two reports, if the present writer understands them, there seems to be a difference in emphasis. The committee reached the conclusion: "If properly timed, as the pendulum of employment starts to swing in an unfavorable direction, the influence of the prompt expedition of public works is effective out of all proportion to its size. Timeliness multiplies the effectiveness of each product accelerated . . . nor does it appear practicable or necessary on any *large scale*⁵ to withhold expenditure on public construction during years of prosperity in order to accumulate a reserve of work during business depressions" (pp. xxiii-xxiv). Dr.

4. Georg Bielschowsky, *Business Fluctuations and Public Works*, February, 1930, p. 288.

5. The Committee's italics.

Wolman, on the other hand, does not commit himself to the view that the beginning of a recession is the time to expedite public works. As a satisfactory theory of public works control must be at the same time an adequate explanation of business cycles (p. 168), he is ready to give only tentative adherence to the theory of increasing expenditures on public construction "at the beginning of an industrial depression or during its course" (p. 175). Also, the progressive diffusion of employment is subject to the condition — "if (the acceleration of public construction is) done on a large scale" (*ibid*).

The two other variants of public works theory, unpremeditated emergency programs and a public works reserve, find no favor in Dr. Wolman's view. The first has inherent difficulties; and the second involves an arbitrary decision regarding the proper rate of expansion of business activity, might precipitate or hasten a decline in business, and puts an undue burden upon the public authorities (pp. 172-174).

The bulk of Dr. Wolman's report is devoted not to theoretical arguments, but to the factual basis for a considered policy and program. He studies the volume of public expenditures on permanent improvements; their variety; the programs of the future; and the important administrative features in the execution of public work projects. His findings are summarized in the introduction. The volume of expenditure is estimated on the basis of contracts awarded. These estimates are supplemented by more or less detailed descriptions of the activities of sample municipal and state governments of the Federal Government, and of the Bureau of Public Highways. He concludes: "The most feasible form of control appears to be that of the temporary acceleration of works already projected. The effective achievement of this goal depends, in turn, on the progressive improvement in the management of our many governments" (p.6).

This inadequate summary of Dr. Wolman's important report — valuable not only for its statistical material, but also for its presentation of the administrative problems — is the end of my attempt to state briefly the principal features found in some four thousand pages by eleven authors. To the sub-

ject of unemployment, every resource of economic understanding and all methods of economic inquiry are being applied. When economists are confronted with a great task, they do not hear the echoes of methodological disputes.

II

I will now select a few topics for critical discussion and, abandoning the somewhat irksome rôle of critical observer, make some suggestions of my own. The following observations on the causes and prevention of unemployment, on public works, employment offices, and unemployment benefits are necessarily only fragments. I am forced to choose questions of general principle, for the important problems of administration cannot be treated briefly.

Sir William Beveridge's statement of the doctrine that high wages are a cause of unemployment is a generalization of vital importance. With the general conclusion I am not only in agreement, but also I would apply it to the United States, where the inflexibility of wages is much less imposed by trade unionism and not at all by unemployment insurance. Sir William Beveridge's statement is that there is a causal connection between the rise of real wages and the rise of unemployment (p. 371). The present writer would insist that the rise of unemployment must reduce real wages, that any such volume of unemployment as Great Britain has experienced must reduce the purchasing power of the aggregate wages bill. The obvious explanation of the contradiction is that the statistics of the increase in real wages refer to the rates of real wages per hour or week. Sir William Beveridge appears to have slipped into the easy confusion of rates and aggregates, for he reaches the conclusion that the standard of living is a cause of unemployment. Now if he means by standard of living insistence on customary money wage rates, I agree; but if he means that real income is higher if wage rates are maintained in the face of falling prices, unaccompanied by a parallel increase in production, I do not. Such a broad statement needs some qualification, with reference to purely cycli-

cal fluctuations and the short-run interests of special classes of workmen: but no sentence can cover all causes of unemployment. I do not think that the burden of so much unemployment finally leaves the regularly employed British workmen better off, or that they themselves believe so, or that they would brutally act on the belief if they had it. They see the burden of unemployment but not the burden of high wage rates.

For the same reason, I feel compelled to reject the argument on overpopulation as a cause of unemployment. This is also stated in terms of the standard of living—"standard of living forms the link between two questions hitherto kept distinct—that of unemployment and population" (p. 372). The familiar (and sometimes tautological) proposition that a high (ideal) standard of living will check or reduce overpopulation is not here in question. Here the question is whether a high standard of living will operate to reduce real wages by leading workmen to prefer unemployment. As I see it, a high standard of living is more likely to lead to a search for the maximum real income than to a preference for unemployment. If a high standard of living is coincident with overpopulation, we should expect a bitter struggle between the antagonists, irrespective of the ability of the wage earners to work out a balance between high money wage rates and unemployment which will give them the maximum aggregate wages. Unemployment is caused by overpopulation only in the sense that the latter is one source of difficulty in adjusting money wage rates so as to reach the maximum money income and the highest possible standard of living. Sir W. H. Beveridge's new chapter on population contains much that is good, particularly a pointed discussion of the optimum number doctrine; but on the basic question of the relation of unemployment to population the present writer prefers the original chapter in Part I.

This criticism of Sir William Beveridge's statement is not a matter of quibbling about the "proper" definition of the terms real wages and standard of living; it is a matter of great practical importance. The emphasis on money wage

rates is a link with currency problems. Still more significant is the fact that the identification of a cut in wages with a reduction of the standard of living leaves the discovery of high wages as a cause of unemployment without practical result. It may be a "cause," but it is not a means of control. Sir W. H. Beveridge does not advocate lowering wages directly or indirectly by raising prices. He rules out inflation. And "to admit reduction of wages as the prime means of reducing costs of production weakens the incentive to progress; the effect of such a doctrine on efficiency has been poignantly illustrated by the coal mining industry" (p. 417). Here Sir William Beveridge appears to approach Mr. Rowe and Mr. Dobbs, whose theories for raising wages he had rejected earlier. (pp. 362ff.)

I had thought that the Commission on the Coal Industry had reached the conclusion that the leadership in that industry was peculiarly bad. I cannot presume to measure the caliber of British employers; but on the theoretical plane, the answer is the urgent necessity of replacing employers whose incentive to progress is so easily weakened by others of stronger ambition, greater ability, and finer spirit.

Even in the United States, where increased production would be expected to make wage rates follow a higher course than that of commodity prices, the confusion of wage rates and wage earners' purchasing power has helped to aggravate unemployment. Before the depression, some of our technological unemployment was probably caused by the substitution of machinery for unduly expensive labor.⁶ During the depression, the insistence on maintaining wage rates has made it more difficult for employers to maintain their labor forces. We do not know how important a rôle wage reductions may have in working out cyclical readjustments, and cannot affirm that they are not indispensable, particularly when the trend of prices is downward. Then the risk of subsequent

6. The introduction of machinery when wages are too high to permit employment is wages saving — labor wasting, not labor saving. As administrators must calculate in money terms, "lowering wages to meet productivity" may be an essential preparation for raising productivity, not an alternative.

labor disturbances in the effort to increase wages again is considerably less, and is probably worth taking.

We should not enhance the inflexibility of wage rates, which is based in considerable measure upon the many reasons an employer has not to reduce wages. This is not all generosity, for generosity might often be an argument for reduction, and upward inflexibility is none the less real if not of immediate importance.

Lowering real wage rates by inflation is so involved a topic that we cannot examine here Sir William Beveridge's conclusion that "the inevitable after-effects rule it out." (p. 416.) I will only note that the after-effects of inflation to reestablish something like a balance between wage rates and prices may not be the same as those of inflation resulting from some great pressure for government expenditures. In any case, this reestablishment involves inflation, not merely the stabilization cautiously advocated by Douglas and Director (Chapter XVII, esp. p. 251).

Douglas and Director do not overlook the real difficulties of stabilization. These difficulties should be weighed in the balance against the difficulties of doing nothing or the difficulties of government relief. Traditional distrust of all government action must give way before the recognition that some government action is inevitable. Deflation and its consequences cannot be regarded with equanimity.

The same writers make an excellent point in their discussion of the business cycle, that "the emphasis on monetary factors lends itself . . . more readily to remedies than [does] the emphasis on the productive process" (p. 180). A perplexed world, anxious for guidance, is impatient with "causes" that are beyond any control. As regards the credit mechanism, while the existence of central banks makes the statement true in general, the scattered banking resources and the abundance of working capital in the United States are severe limitations on the effectiveness of control. Even the emphasis on monetary factors involves some "reorganization of the whole economy." There is considerable concentration of power in investment banking, the stock

exchange, and many of our great industries. But to inquire into reorganization in these fields would open up the whole question of economic planning.

On the planning and control of public works, Dr. Wolman's conclusion has been confirmed by more recent experience — there are substantial opportunities, in a country that can look into the future with some clearness and confidence, to provide employment by speeding up some public works. Anticipation of future needs involves planning of an easier character than the extraordinary economic prescience required to make public works the balance wheel of our economic system. If any government had such advance information, it is doubtful if adjustment of public works would play an important rôle in the uses to which such knowledge could be put.

Public works, as a business stimulant, as a device to provide employment not only directly but through an endless chain of revived demand, are to be viewed with the strongest skepticism. The basis for this skepticism is well established in the literature here reviewed. Such a stimulant would have to be timed with great accuracy. To the suggestion in the report of the Committee on Recent Economic Changes that the proper time is the beginning of a recession, there are three important objections: (1) The beginning of a recession is not easily recognized. (2) It is usually characterized by financial stringency which would be aggravated by large scale public financing. (3) Until basic readjustments have been worked out and confidence restored, active purchasing would not take place.

In the present writer's judgment, public works as a business stimulant should be timed for the early stages of business revival. We should save our kindling, if possible, until our logs are well dried out. There are periods in which the reasons for "keeping money in circulation" are not fallacious; but unfortunately they are best seen in retrospect. In general, it appears that public works are more useful as firewood to take the chill off a few rooms on a dark day than as kindling

to start a blaze that will fill the whole house with warmth and cheer.

No large questions of principle are involved in the problem of public employment agencies, but technical and administrative difficulties abound. They might well have occupied even more space in the discussion by Douglas and Director; and on them Sir William Beveridge with his high authority might have said more.⁷

In their general discussion, Douglas and Director make use of some arguments of questionable validity. At one point they say, "we have already developed organized markets for almost every variety of commodity except labor, . . . cotton, wheat, corn, oats, barley, rye, beef, pork, copper, tin, and scores of other products" (p. 256). This is harmless, unless one's attention is thereby distracted from the technical peculiarities of the "commodity" labor and from the quite different peculiarities of other commodities shown by such technical devices as grading, warehousing, and hedging. More important, these writers restate Sir W. H. Beveridge's labor reserve argument in a form which would not support the case for public employment offices as transfer agencies. To the extent that establishments "tend to hold about them sufficient labor to meet their own peak load" (p. 258), there are no establishments with vacancies that cannot be filled at the gate. The labor exchanges can only transfer men to the extent that this tendency is balanced by the opposite tendency to have less than sufficient labor. According to the two Americans, the "excess loading of the labor market is directly chargeable to the practice of maintaining separate labor reserves" (p. 259); in Sir William Beveridge's discussion, the crowd of applicants appears to be an assumption (p. 78 n.). According to Douglas and Director, the reserves are a premise, the overcrowding is the conclusion; according to Sir William Beveridge, the overcrowding is a premise, the reserves are the conclusion.

7. Stewart gives a brief but significant account of the technical difficulties in administering the Chicago employment office of the Amalgamated Clothing Workers. (pp. 404-405.)

The chapter in Douglas and Director called "Next Steps in the Creation of an Efficient Public Employment Service in the United States" contains much good material on technical and administrative problems. Doubt may be expressed whether job analyses and trade tests will put employment offices in a position to do much more than make a rough sorting and weed out the thoroly unfit. These devices, necessary as a war time expedient, have played no great rôle in the personnel and employment practice of American corporations in peace time. For administration, the authors would choose civil servants, not executive appointees. Under our present political arrangements, this is unquestionably a wise choice; but the weakness of bureaucratic administration, despite the suggested safeguards — weaknesses which led Germany to have the officials concerned with the exchanges engaged under the ordinary conditions of private contract — are a serious handicap. Even more emphasis might well have been put on the principle that "it is peculiarly essential . . . for public employment agencies to have the support of most employers" (p. 349).

Faced with all these difficulties and handicapped by a bad reputation, public agencies in this country have little prospect of becoming, in the near future, an important means of combatting unemployment. Least of all are our public agencies ready to carry the additional burden of administering unemployment insurance. None the less the difficulties in the way of an effective organization of the labor market are no reason for abandoning the cause but a challenge to our intelligence and persistence.

The subject of unemployment insurance includes so many difficult questions of principle and so many perplexing problems of organization and administration that I can touch upon only a few.

Douglas and Director open "the case for unemployment insurance" with the assertion that "the general surplus available for saving is not large among the majority of American workers" (p. 485). This is an argument for insurance only if insurance will increase production and wages, or if

insurance is not paid out of wages. The effect of insurance upon production is the resultant of so many factors, favorable as well as adverse, that the net result must be a matter of opinion. In the light of the whole record, I consider that it is wiser to hold to the conservative view that insurance is a device to spread income through time rather than to increase it.

The ultimate source of contributions to unemployment insurance raises the question of incidence, so generally neglected in popular discussion, and ignored also by Douglas and Director. To state my own conclusion without reasons: the workmen pay for insurance, except in so far as the public treasury comes to their aid, either by direct contribution to benefits or by indirect support of the unemployed whom the employers do not consider to be worth the customary rate of wages plus the supplementary charges for unemployment insurance.⁸ Contribution of the employers are to be justified on grounds of administrative or political expediency. From this standpoint, an inadequate level of American wages is a cause for action to increase them, and a forceful reminder of the necessity to increase production, but not an argument for or against unemployment insurance.

The authors' second argument, that "the method of insurance . . . is . . . now employed by nearly all well-

8. Douglas and Director would probably disagree, for a "diffusion theory" is implied in the statement that "it is only proper that industry and the consumers should pay part of the burdens caused by seasonal, cyclical, and technological changes for which the worker suffers but over which he has no control." (p. 494.) The main proposition needs to be qualified somewhat by recognizing that state unemployment insurance would strengthen unionism which will operate to reduce profits.

The student will find an excellent critical examination of popular discussions of incidence in an article in the August, 1931, number of this JOURNAL, *Some Economic Implications of Unemployment Insurance*, by Dale Yoder. Mr. Yoder draws the conclusion that the public treasury should pay the cost. His grasp of economic theory is not equalled by his understanding of administration. Attempts to redistribute wealth and to grapple with unemployment cannot well be combined. And, granting that the incidence of taxation can be lifted from the workmen's shoulders, we should not ignore the collateral effects of such measures, for these effects may be more serious for the wage earners than the tax burden.

managed enterprises so far as their investors are concerned" (p. 485) does not appear to be worthy of the attention of the serious student. Corporate saving is, in part, a device for spreading dividends payments, but does not involve any insurance, any contributions by all the members of a group exposed to a common risk to provide benefits for the unfortunate victims.

One of the principal difficulties with unemployment insurance, especially of the German and British systems, is that we do not know to what extent unemployment is a risk in the technical sense. We can estimate the average amount of unemployment for a group of wage earners, but we could also figure out the average number of failures among new corporations or among students entering college. The divergencies from the average are not necessarily a matter of chance. Lacking knowledge of the extent to which unemployment is a risk, we cannot tell the extent to which contributions to an insurance system are "a tax on employment" (Beveridge, p. 289), "an arbitrary poll tax" (Davison, *What's Wrong*, p. 15), or the small price paid by those lucky enough to escape.

This fundamental difficulty is not merely a matter of the mere definition of risk. The great practical objective, maintaining the feeling that the system is really insurance, is hard to obtain when we do not know whether it is or not. It is a matter more of sentiment than solvency. Solvency can be protected by a fixed ratio of contributions to benefits — a procedure which, however, is a departure from the insurance principle because it is based on individual, not group, experience. The sentiment affects the solvency, however, because uncertainty about the insurance character affects the willingness to pay high contributions.

If a compulsory plan is to be adopted, we would do well to consider dropping the insurance principle and adopting compulsory saving for unemployment. The rate of employers' and workmen's contributions could be made higher, if they could stop when protection for a full year had been paid up and the accumulation could be paid to a workman on his

retirement or to his heirs on his death.⁹ If both parties contributed, the workman might not object too strenuously to obtaining what would appear to be 100% interest per annum. Solvency would be assured, barring gross mismanagement of investments. Such a system would be subject to less abuse by employees and workmen; seasonal workers and chronically irregular industries would not drain the fund, and unemployment would not be ignored in wage negotiations. It would, of course, be open to the objection that it would do comparatively little for the worthy unfortunate, even though higher contributions would leave "the average workman" in a better position. While this objection is inherent in abandoning the insurance principle, the compulsory saving scheme would do something, especially for "those fit men and women who have a proven employment value and who are the nation's chief asset" (Davison, *What's Wrong*, p. 73). Furthermore, many worthy unfortunates cannot receive adequate relief under any practicable insurance scheme. Moreover, compulsory saving against unemployment would permit the accumulation of experience which might permit the identification of some groups subject to a common risk and to prepare the way for a safe introduction of insurance.

If the complete abandonment of the insurance principle is too drastic, a compulsory scheme should at least have a large number of separate funds for various industries and trades, not a general fund. Funds from the public treasury should not be used, unless possibly to cover some expenses of administration. They should not be used for benefits, either as contributions, loans, or emergency relief. Whether a state compulsory scheme could resist the pressure for emergency benefits is a crucial question. If not, as Douglas and Director think (p. 492), the maintenance of the clear separation between relief and insurance, on which the best British

9. Provision for unemployment might be combined with provision for old age, where the savings principle is alone applicable. The insurance principle, in the form of the deferred annuity, treats old age as a risk. Under such a scheme those who have the misfortune to die young pay for those who have the better fortune to live. The deferred annuity is the antithesis of life insurance.

opinion is so insistent, is politically impossible. If not, the prospect of an obvious dole will so strengthen the American resistance to any form of state insurance as to reduce its chances of passage except in a political panic and to damage its chances of successful operation at any time.

Insurance principles are much more readily applied in company plans, where eligibility can be restricted to "regular employees," for whom the danger of unemployment comes reasonably close to the ideal requirement of uniform exposure. The great weakness of company plans is that they cover only regular employees who are temporarily laid off. A dismissal wage, paid to those laid off permanently, has great merits and the virtue of administrative simplicity. But as a device to meet unemployment, it might be unnecessary in good times and inadequate in bad. The major burden of unemployment is concentrated on the "temporary" employees who are likely to become irregular in more senses than one.

The future of company plans is uncertain. Douglas and Director are entirely correct in saying that "if past experience is any guide, it is idle to expect that any considerable proportion of the workers can find adequate protection through the voluntary adoption of such insurance plans by employers" (p. 490). But if past experience is any guide, the things which they recommend are equally hopeless: public employment offices will be ineffective and unemployment insurance will fail of enactment. In any case, effective action against unemployment is impossible if employers are indifferent or hostile. The same writers go too far in characterizing company plans as "proposals which will impose an appreciable added expense and thus place them at a competitive disadvantage in comparison with other companies" (p. 490). The competitive disadvantage would not appear if the workmen appreciated the advantages of protection — either by higher grade applicants, increased production, or willingness to accept lower wage rates — and fear of such disadvantage has not prevented much effort and expense to improve labor relations in industry.

To overcome the inadequacies of company plans, American employers might set up collective plans to organize the labor market and pay the unemployed. Only the briefest outline of such a plan can be given here. An employment trust, resting on voluntary adherence of employers, could operate mainly on the savings principle and admit a wide variety of special plans, both contributory and noncontributory. It could pay benefit to others than regular employees temporarily laid off. It would not interfere with the mobility of labor between establishments, but would still leave plenty of opportunities for companies to develop employee loyalty. There would be no need to lay down definite and universal rules for employee participation in administration (which would be a stumbling block in any state scheme), for the various sections could make any arrangements they chose for labor representatives selected by the employers, shop committees, or trade unions. Voluntary arbitration could be used to settle disputes over rights to benefits. The administration of benefits and of placement would require the most devoted trusteeship and the most scrupulous neutrality in all political and industrial controversies. It could play no part in struggles with unions or in attempts to weed out malcontents. Only officials of high repute and administration open to public inspection could destroy the suspicion which any such scheme would meet at the start. Such a scheme might win exemption from a state scheme for its pioneers, and would provide valuable experience. To many this proposal will seem as fantastic as the Five-Year Plan would have appeared to Nicholas II or the British unemployment system to Cobden, Bright, and Herbert Spencer. It is, however, the only alternative to compulsion in a country whose traditions and federal character make compulsion appear remote and fraught with difficulties.

The problem of unemployment will continue serious, even though the present catastrophic amount will not persist. It will be one of the important factors modifying political traditions, economic institutions, and social ideals. It will vitally affect a wide variety of other problems — especially

charity, finance, and industrial management. It is difficult to deal with because we do not understand it, and it is difficult to understand because we have not dealt with it. Like other parts of nature, it abhors categories and resists our attempts to understand it by using the logically distinct categories of poor relief, insurance, prevention, and saving, for it combines all of them. Insurance cannot eliminate the need for a reform of poor relief. It has the inherent difficulty of attempting to ignore Professor Frank H. Knight's valuable distinction between a risk and an uncertainty. Whatever measures are adopted, the problem of unemployment will continue to tax our power of understanding, our skill in administration, and our generosity of heart.

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ON A PASSAGE OF PROFESSOR TAUSSIG'S INTERNATIONAL TRADE

In his admirable work on International Trade (pp. 358-362) Professor Taussig expounds the following case. America and England are two nations with paper money and, in consequence of a loan of England to America, English paper money suddenly depreciates relatively to American paper. Now the effect of this fact is that the English exporter to New York receives, in exchange of the dollars paid for his wares, an amount of pounds greater than before, while the American exporter to London receives, in exchange of the pounds paid for his products, an amount of dollars smaller than before. Therefore this state of things creates a bounty on exportation of English commodities to America and a restraint to importation of American commodities to England. Then the increasing exportation of English wares to America will diminish their price in dollars; the diminishing exportation of American wares to London will raise their price in pounds; and that process continues till the price of the English products in America will fall and the price of the American products in London will rise in exact correlation to the changed value between the two national currencies. *I.e.*: the variations of value between two national currencies change in the same proportion the price of the wares imported to the two nations, but do not change the price of the home-made products.

Now the last condition seems to me inadmissible. Indeed, if English exporters to America acquire, in exchange of the constant quantity of dollars immediately received for the exported products, a greater quantity of pounds, they will raise in the same ratio the price of these products in the British market; but then even the price of all other English wares, and also of the imported American products, will rise in the same ratio on the British market; because otherwise the English producers of the exportable wares would

obtain a surplus profit incompatible with free competition. Therefore all prices will be raised in the English market, in exact proportion to the diminution of the external value of English money, while all prices will remain unchanged in the American market. *I.e.* the internal value of English money will sink in exact proportion to the sinking of its external value.

If, on the other side, the American exporter to England receives for the exported products a constant amount of English pounds and with this a smaller amount of dollars, he will necessarily sell his products on the American market at a price in dollars also diminished. But, then, even the price of all other American wares, and also of the English wares imported, shall sink in the same ratio on the New York market. Therefore in this case all American prices will remain unchanged; *i.e.*, the internal value of the American money will rise in exact proportion to the increase of its external value.

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To these criticisms of my much esteemed friend Professor Loria I would comment as follows:

(1) An essential part of my reasoning in the passages referred to is that there is not "free competition," — that is, not immediately effective competition. The English exporters *do* get a "surplus profit" for a time; that is, until there has been a readjustment in England in the way of producing more of the exported goods, less of the domestic goods. The time during which this surplus profit will persist may be by no means short. There is abundant experience to show that such a "bounty on exports" continues for very considerable periods, and this even in the "advanced" countries in which we are apt to assume that competition is free.

On the other side, the American exporters are getting for a time, and also very likely for a considerable time, less than the usual profits. Competition probably will act slowly for them also. Their case is the reverse of the British. We may

reason that in time competition will bring it about that the Americans will lessen their output of exported goods, and so bring the returns in the exporting industries up to the "normal." In both cases the element of time is the crux of the bounty or tax (as the case may be).

(2) All prices will *not* be raised in England by the supposed course of international trade; or rather, the total money income of the English will not be raised. This is to be deduced from the premise that there is an inconvertible currency of rigidly unchanging quantity and of the same velocity of circulation. The same holds for the United States. The prices of domestic English goods will not rise to a level corresponding to the higher price of English exported goods. On the contrary, the prices of exported goods will fall in time to a level corresponding to that of the domestic goods.

In this indication (in the main, repetition) of my views, I have said nothing about the effects which may be expected in both countries from the *ultimate* changes in quantities of goods produced in them; and also have omitted consideration of the cognate subject of the part which will be played in both countries by the elasticity of demand for the two classes of goods, — the domestic and the foreign. The casuistry (or mathematics) of the subject has intellectual attraction, and could be carried far. For the explanation of those phenomena which our statistical and descriptive material makes it possible to scan, I doubt whether anything is gained by such intricacies of analysis. Even the comparatively simple reasoning which I have tried to restate in the preceding paragraphs, about the immediate effects, is difficult to test or verify from the evidence of recorded facts. As a piece of pure theory, I am constrained to think that the reasoning of my book, which I have summarily stated again in its bearing on my distinguished colleague's criticism, still stands.

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